



HONGFA RELAY



HVDC RELAY II



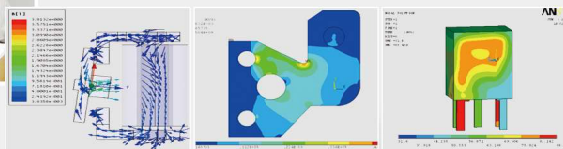
www.hongfa.com



RoHS&ELV compliant

IATF16949 CERTIFIED

PROFESSIONAL AUTOMOTIVE RELAY & MODULE MANUFACTURER





COMPANY INTRODUCTION

HONGFA

HONGFA (Stock code: 600885, SSE) always conforms to its business philosophy -- "Never rest on our laurels, make more progress" and uses this philosophy as the basis of its operational policy -- "Market-oriented concept, win by high quality". The following companies are fully or partially owned by HONGFA--Zhangzhou Hongfa, Jinhai, Xi'an Hongfa, Hongyuanda, Hongfa Automotive Electronics, Hongfa Signal Electronics, Hongfa Power Electronics, Hongzhou, Hongfa Wufeng, Hongfa Electrical Safety & Control, Hongfa Electric, Jinyue, Jinbo, Jinghe, Hongfa Industrial Robot, Hongfa Precision Machinery, Shanghai Hongfa, Beijing Hongfa, Sichuan Hongfa (Sales), Hongfa Hongkong, Hongfa Europe GmbH, Hongfa America Inc., KG Technologies Inc. HONGFA products include as relays, low-voltage devices, switchgears, precise parts, automatic equipment, etc..

HONGFA is now the leading relays sellers and manufacturer in China and is ranked No. 1 in the industry for overall economic efficiency. From 1995, HONGFA has continuously ranked among 'China Top-100 Electronic Components Enterprises' with a current position of the 9th and has received many awards: HONGFA has recognized as one of the China Top 100 Enterprises Of Electronic Information for the first time as the first finalist in relay, in 2014. HONGFA is authorized as "the Advanced Enterprise to implement High Technology in Torch Plan" by the Ministry of Science and Technology of PRC. HONGFA has been awarded "National foreign trade transforming and upgrading base (Automotive Components)" by the Ministry of Commerce of PRC and National Development and Reform Commission. HONGFA is the only company being awarded this honor in the Chinese relay industry.

HONGFA has a full set of quality assurance systems including ISO9001, ISO/TS16949, ISO14001, OHSAS18001, GJB9001A, IECQ QC 080000. HONGFA has also been honorably awarded "High Quality Product exempt from National Inspection". HONGFA products are UL/CUL, VDE, TÜV, CQC and CCC approved. With high performance, top quality, competitive price and excellent technical services, HONGFA Relays have become the most perfect choice for the customers.

Since the establishment, HONGFA has been focusing on technology innovation. The technology and the equipment of all the mould tooling, parts manufacturing and products assembly and the production environment are in the leading position in Chinese relays industry. HONGFA Testing Centre is the biggest relays testing and analyzing laboratory with the most advanced technology in China, which is approved by CNAS, approved by America UL as a CTDP lab, and approved by Germany VDE as a TDAP lab -For VDE's TDAP lab, there is only one in China and only six in the world. Hongfa is able to supply to the customers accurate, credible and authorized inspection data and test reports.

HONGFA has a wide range of relays, including Signal relays, Power relays, Automotive relays & modules, Latching relays, HVDC relays, Industrial relays, Safety relays. The company has the annual production capacity of 2.0 billion pieces of relays.

Now HONGFA has become the world leading relays research and manufacturing base. Hongfa people are looking forward to growing, developing and prospering with all the partners and customers worldwide together.

NEVER REST ON OUR LAURELS, 
MAKE MORE PROGRESS

WE ARE CONTROL EXPERT

Hongfa is a professional relay manufacturer and has a wide range of relays. Hongfa relays are UL/CUL, VDE, TüV, CQC and CCC approved. They are widely used in those fields like industrial control, automotive, telecom equipment, home appliances, metering instruments, security and alarm systems, medical appliances and aviation.

HONGFA PRODUCTS:



Signal Relay



Power Relay



Automotive Relay & Module



Latching Relay



New Energy Relay



Industrial Relay



Safety Relay



Hermetically-sealed Relay



Low-voltage Device



Switchgear



Automatic Equipment

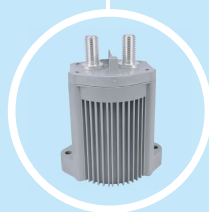


Precise Parts



CONTENTS

Company introduction	Color page
Catalog	1
Selection guide	2
Selection chart	4
Relay data sheets	11
Packing list of relay	84
Explanation to terminology and guidelines of relay	85



SELECTION GUIDE

Terminals				Coil		Relay Type	Contact Form	Page	Switching Current (Res. load)	[A]										
PCB	QC	Plug-in	Other	DC	AC				0	5	10	20	40	60	80	100	150	200	250	300
						HFZ16V-30	1A(Double-contact of 1 FormA)	11	<div></div>											
						HFZ16V-50		15	<div></div>											
						HFZ16V-50P		37	<div></div>											
						HFZ17V-50		63	<div></div>											
						HFZ16V-100		20	<div></div>											
						HFZ16V-100P		42	<div></div>											
						HFZ18V-100P		67	<div></div>											
						HFZ16V-150		25	<div></div>											
						HFZ16V-150P		47	<div></div>											
						HFZ18V-150P		71	<div></div>											
						HFZ20V-150P		75	<div></div>											
						HFZ16V-200		29	<div></div>											
						HFZ16V-200P		51	<div></div>											
						HFZ20V-200P		80	<div></div>											
						HFZ16V-250		33	<div></div>											
						HFZ16V-250P		55	<div></div>											
						HFZ16V-300P		59	<div></div>											

How to use the table: Please select the **CONTACT FORM**. Then choose the relay according to **SWITCHING CURRENT** and **OTHERS** (for instance, coil voltage, terminal style, etc.).

Application Information (BY RELAY TYPES)

New Energy Vehicles										
	Main Relay		Precharge Relay		Quick Charge Relay		General Charging Relay		Auxiliary Relay	
Passenger Car EV/PHEV	HFZ16V-150	P25	HFZ16V-30	P11	HFZ16V-150	P25	HFZ16V-30	P11	HFZ16V-30	P11
	HFZ16V-200	P29	HFZ16V-50	P15	HFZ16V-200	P29	HFZ16V-50	P15	HFZ16V-50	P15
	HFZ16V-250	P33	HFZ16V-50P	P37	HFZ16V-250	P33	HFZ17V-50	P63	HFZ16V-50P	P37
	HFZ16V-150P	P47	HFZ17V-50	P63	HFZ16V-150P	P47			HFZ17V-50	P63
	HFZ16V-200P	P51			HFZ16V-200P	P51				
	HFZ16V-250P	P55			HFZ16V-250P	P55				
	HFZ18V-150P	P71			HFZ18V-150P	P71				
Passenger Car HEV	HFZ16V-100	P20	HFZ16V-30	P11	—	—	—	—	HFZ16V-30	P11
	HFZ16V-150	P25	HFZ16V-50	P15					HFZ16V-50	P15
	HFZ16V-200	P29	HFZ16V-50P	P37					HFZ16V-50P	P37
	HFZ16V-100P	P42	HFZ17V-50	P63					HFZ17V-50	P63
	HFZ16V-150P	P47								
	HFZ16V-200P	P51								
	HFZ18V-100P	P67								
HFZ18V-150P	P71									
Bus	HFZ16V-200	P29	HFZ16V-30	P11	HFZ16V-150	P25	HFZ16V-100	P20	HFZ16V-30	P11
	HFZ16V-250	P33	HFZ16V-50	P15	HFZ16V-200	P29	HFZ16V-150	P25	HFZ16V-50	P15
	HFZ16V-200P	P51	HFZ16V-50P	P37	HFZ16V-250	P33	HFZ16V-200	P29	HFZ16V-50P	P37
	HFZ16V-250P	P55	HFZ17V-50	P63	HFZ16V-150P	P47	HFZ16V-100P	P42	HFZ17V-50	P63
					HFZ16V-200P	P51	HFZ16V-150P	P47		
					HFZ16V-250P	P55	HFZ16V-200P	P51		
					HFZ18V-150P	P71	HFZ18V-100P	P67		
						HFZ18V-150P	P71			
Cargo Van	HFZ16V-100	P20	HFZ16V-30	P11	HFZ16V-150	P25	HFZ16V-30	P11	HFZ16V-30	P11
	HFZ16V-150	P25	HFZ16V-50	P15	HFZ16V-200	P29	HFZ16V-50	P15	HFZ16V-50	P15
	HFZ16V-200	P29	HFZ16V-50P	P37	HFZ16V-250	P33	HFZ16V-50P	P37	HFZ16V-50P	P37
	HFZ16V-100P	P42	HFZ17V-50	P63	HFZ16V-150P	P47	HFZ17V-50	P63	HFZ17V-50	P63
	HFZ16V-150P	P47			HFZ16V-200P	P51				
	HFZ16V-200P	P51			HFZ16V-250P	P55				
	HFZ18V-100P	P67			HFZ18V-150P	P71				
HFZ18V-150P	P71									




Other DC input/output applications									
DC Charging Point	HFZ16-30P	11	HFZ17-50P	63	HFZ16-150P	47	HFZ16-200P	51	
	HFZ16-50P	37	HFZ16-100P	42	HFZ18-150P	71			
	HFZ16-250P	55	HFZ18-100P	67					
Energy Storage System	HFZ16-50P	11	HFZ16-100P	42	HFZ16-150P	47	HFZ16-200P	51	
	HFZ16-250P	37	HFZ18-100P	67	HFZ18-150P	71			

Notes: The above models are recommended for typical applications only. For more practical application, the system voltage, current, installation and other factors should be considered. Please contact Hongfa for the most suitable selection of models.




How to use the table: Please select the **CONTACT FORM**. Then choose the relay according to **SWITCHING CURRENT** and **OTHERS** (for instance, coil voltage, terminal style, etc.).

SELECTION CHART

New Energy Relay

Type	HFZ16V-30	HFZ17V-50	HFZ16V-50
Appearance			
Dimensions(L x W x H) mm	53 x 36 x 39.5	53 x 36 x 39.5	54 x 40.3 x 58.3
Features	<ul style="list-style-type: none"> Rated 30A switching capability No polarity on the load and the coil The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment. Pre-charging and other applications Small size, light weight 	<ul style="list-style-type: none"> Rated 50A switching capability No polarity on the load and the coil The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment. Pre-charging and other applications Small size, light weight 	<ul style="list-style-type: none"> Rated 50A switching capability No polarity on the load and the coil The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment. Pre-charging and other applications Small size, light weight

Contact Ratings

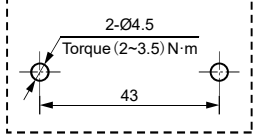
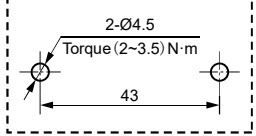
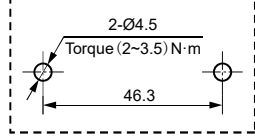
Contact Form	1SH	1SH	1SH
Contact material	Cu	Cu	Cu
Max. Rated Switching Current			
Max. Switching Voltage	900VDC	900VDC	900VDC
Max. switching power	96kW	160kW	160kW
Contact rating(Resistive load)	30A 450VAC	50A 450VDC	50A 450VDC

Coil Ratings

Nominal Voltage	(12~ 24)VDC	(12~ 24)VDC	(12~ 24)VDC
Power consumption	3.6W, 3.8W	3.6W, 3.8W	5.5.W, 6W

Specifications




Insulation Resistance	1000MΩ	1000MΩ	1000MΩ
Dielectric Strength (Between coil and contacts)	2200Vrms	2200Vrms	2200Vrms
Ambient Temperature	-40°C~ 85°C	-40°C~ 85°C	-40°C~ 85°C
Operate / Release Time max.	30ms / 10ms	30ms / 10ms	30ms / 10ms
Mechanical Endurance min.	2 x 10 ⁵ OPS	2 x 10 ⁵ OPS	1 x 10 ⁶ OPS
Electrical Endurance min.	1 x 10 ⁴ OPS	1 x 10 ⁴ OPS	1 x 10 ⁴ OPS

Layout (Bottom view)			
Terminal Type(coil/loads)	Lead Wire	Lead Wire	Lead Wire
Safety approval ratings			
File No.			
Safety approval ratings			
Page	11	63	15

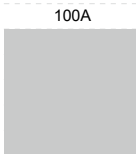
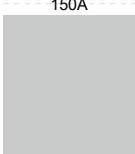

Note: Specification and dimensions in this catalog are subject to change without notice.

SELECTION CHART

New Energy Relay

Type	HFZ16V-100	HFZ16V-150	HFZ16V-200
Appearance			
Dimensions(L x W x H) mm	54 x 40.3 x 58.3	80.5 x 66 x 72.3	80.5 x 66 x 72.3
Features	<ul style="list-style-type: none"> Rated 100A switching capability No polarity on the load and the coil The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment. Pre-charging and other applications Small size, light weight 	<ul style="list-style-type: none"> Rated 150A switching capability No polarity on the load and the coil The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment. Pre-charging and other applications Small size, light weight 	<ul style="list-style-type: none"> Rated 200A switching capability No polarity on the load and the coil The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment. Pre-charging and other applications Small size, light weight

Contact Ratings

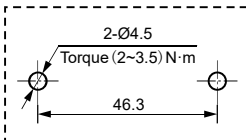
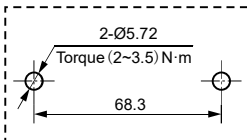
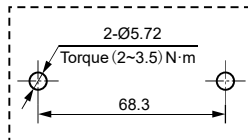
Contact Form	1SH	1SH	1SH
Contact material	Cu	Cu	Cu
Max. Rated Switching Current			
Max. Switching Voltage	900VDC	900VDC	900VDC
Max. switching power	320kW	480kW	640kW
Contact rating(Resistive load)	100A 450VAC	150A 450VDC	200A 450VDC

Coil Ratings

Nominal Voltage	(12~ 24)VDC	(9~ 36)VDC	(9~ 36)VDC
Power consumption	5.5W,6W	Keep the power 2W	Keep the power 2W

Specifications





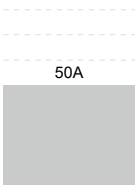
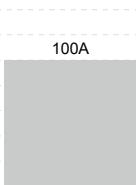
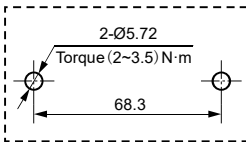
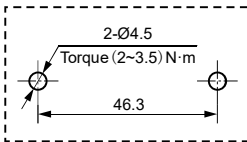
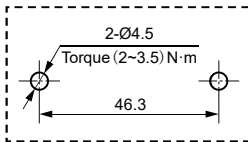
Insulation Resistance	1000MΩ	1000MΩ	1000MΩ
Dielectric Strength (Between coil and contacts)	2200Vrms	2000Vrms	2000Vrms
Ambient Temperature	-40°C~ 85°C	-40°C~ 85°C	-40°C~ 85°C
Operate / Release Time max.	30ms / 10ms	30ms / 10ms	30ms / 10ms
Mechanical Endurance min.	1 x 10 ⁶ OPS	2 x 10 ⁵ OPS	2 x 10 ⁵ OPS
Electrical Endurance min.	1 x 10 ⁴ OPS	1 x 10 ⁴ OPS	1 x 10 ⁴ OPS

Layout (Bottom view)			
Terminal Type(coil/loads)	Lead Wire	Lead Wire	Lead Wire
Safety approval ratings			
File No.			
Safety approval ratings			
Page	20	25	29

Note: Specification and dimensions in this catalog are subject to change without notice.

SELECTION CHART




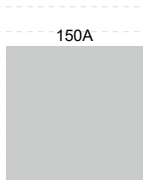
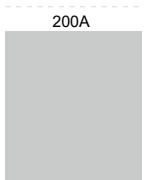
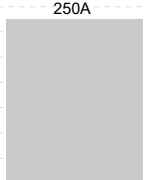
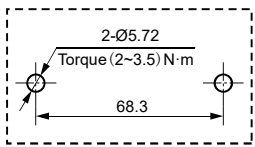
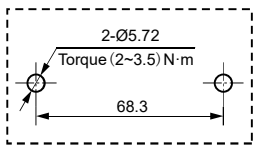
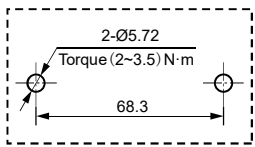
New Energy Relay

Type	HFZ16V-250	HFZ16V-50P	HFZ16V-100P
Appearance			
Dimensions(L x W x H) mm	80.5 x 66 x 72.3	54 x 40.3 x 60.3	54 x 40.3 x 60.3
Features	<ul style="list-style-type: none"> Rated 200A switching capability No polarity on the load and the coil The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment. Pre-charging and other applications Small size, light weight 	<ul style="list-style-type: none"> Rated 50A switching capability Coil does not require polarity, contact load has polarity The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment. Small size, light weight 	<ul style="list-style-type: none"> Rated 100A switching capability Coil does not require polarity, contact load has polarity The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment. Small size, light weight
Contact Ratings			
Contact Form	1SH	1SH	1SH
Contact material	Cu	Cu	Cu
Max. Rated Switching Current			
Max. Switching Voltage	900VDC	900VDC	900VDC
Max. switching power	800kW	160kW	320kW
Contact rating(Resistive load)	250A 450VDC	50A 450VDC 50A 750VDC	100A 450VDC 100A 750VDC
Coil Ratings			
Nominal Voltage	(9~36)VDC	(12~ 24)VDC	(12~ 24)VDC
Power consumption	Keep the power 2W	5.5W,6W	5.5W,6W
Specifications			
Insulation Resistance	1000MΩ	1000MΩ	1000MΩ
Dielectric Strength (Between coil and contacts)	2000Vrms	2200Vrms	2200Vrms
Ambient Temperature	-40°C~ 85°C	-40°C~ 85°C	-40°C~ 85°C
Operate / Release Time max.	30ms / 10ms	30ms / 10ms	30ms / 10ms
Mechanical Endurance min.	2 x 10 ⁵ OPS	1 x 10 ⁶ OPS	1 x 10 ⁶ OPS
Electrical Endurance min.	1 x 10 ⁴ OPS	1 x 10 ⁴ OPS	1 x 10 ⁴ OPS
Layout (Bottom view)			
Terminal Type(coil/loads)	Lead Wire	Lead Wire	Lead Wire
Safety approval ratings			
File No.			
Safety approval ratings			
Page	33	37	42

Note: Specification and dimensions in this catalog are subject to change without notice.

SELECTION CHART




New Energy Relay

Type	HFZ16V-150P	HFZ16V-200P	HFZ16V-250P
Appearance			
Dimensions(L x W x H) mm	80.5 x 66 x 72.3	80.5 x 66 x 72.3	80.5 x 66 x 72.3
Features	<ul style="list-style-type: none"> Rated 150A switching capability Coil does not require polarity, contact load has polarity The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment. Small size, light weight 	<ul style="list-style-type: none"> Rated 200A switching capability Coil does not require polarity, contact load has polarity The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment. Small size, light weight 	<ul style="list-style-type: none"> Rated 250A switching capability Coil does not require polarity, contact load has polarity The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment.
Contact Ratings			
Contact Form	1SH	1SH	1SH
Contact material	Cu	Cu	Cu
Max. Rated Switching Current			
Max. Switching Voltage	900VDC	900VDC	900VDC
Max. switching power	480kW	640kW	800kW
Contact rating(Resistive load)	150A 450VDC 150A 750VDC	200A 450VDC 200A 750VDC	250A 450VDC 250A 750VDC
Coil Ratings			
Nominal Voltage	(9~36)VDC	(9~36)VDC	(9~36)VDC
Power consumption	Keep the power 2W	Keep the power 2W	Keep the power 2W
Specifications			
Insulation Resistance	1000MΩ	1000MΩ	1000MΩ
Dielectric Strength (Between coil and contacts)	2000Vrms	2000Vrms	2000Vrms
Ambient Temperature	-40°C~ 85°C	-40°C~ 85°C	-40°C~ 85°C
Operate / Release Time max.	30ms / 10ms	30ms / 10ms	30ms / 10ms
Mechanical Endurance min.	2 x 10 ⁵ OPS	2 x 10 ⁵ OPS	2 x 10 ⁵ OPS
Electrical Endurance min.	1 x 10 ³ OPS	1 x 10 ³ OPS	1 x 10 ³ OPS
Layout (Bottom view)			
Terminal Type(coil/loads)	Lead Wire	Lead Wire	Lead Wire
Safety approval ratings			
File No.			
Safety approval ratings			
Page	47	51	55

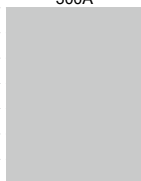
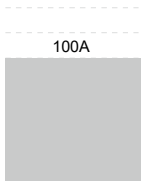
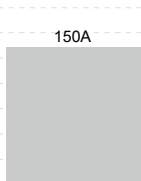
Note: Specification and dimensions in this catalog are subject to change without notice.

SELECTION CHART

New Energy Relay

Type	HFZ16V-300P	HFZ18V-100P	HFZ18V-150P
Appearance			
Dimensions(L x W x H) mm	100 x 80 x 64.2	68 x 50.6 x 58.3	68 x 50.6 x 58.3
Features	<ul style="list-style-type: none"> Rated 300A switching capability Coil does not require polarity, contact load has polarity The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment. Small size, light weight 	<ul style="list-style-type: none"> Rated 100A switching capability Coil does not require polarity, contact load has polarity The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment. Small size, light weight 	<ul style="list-style-type: none"> Rated 150A switching capability Coil does not require polarity, contact load has polarity The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment. Small size, light weight

Contact Ratings

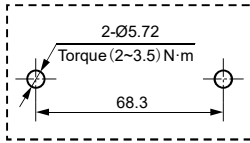
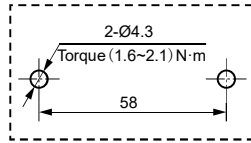
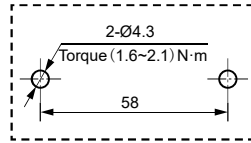
Contact Form	1SH	1SH	1SH
Contact material	Cu	Cu	Cu
Max. Rated Switching Current			
Max. Switching Voltage	900VDC	900VDC	900VDC
Max. switching power	800kW	320kW	480kW
Contact rating(Resistive load)	300A 450VDC 300A 750VDC	100A 450VDC 100A 750VDC	150A 450VDC 150A 750VDC

Coil Ratings

Nominal Voltage	(9~36)VDC	(12~24)VDC	(12~24)VDC
Power consumption	Keep the power 2W	5.8.W,5.2W	5.8.W,5.2W

Specifications



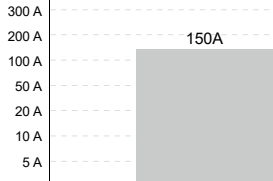
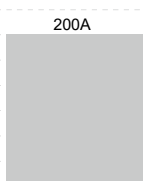
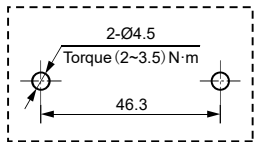
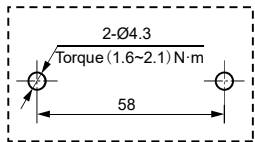
Insulation Resistance	1000MΩ	1000MΩ	1000MΩ
Dielectric Strength (Between coil and contacts)	2000Vrms	2000Vrms	2000Vrms
Ambient Temperature	-40°C~ 85°C	-40°C~ 85°C	-40°C~ 85°C
Operate / Release Time max.	30ms / 10ms	30ms / 10ms	30ms / 10ms
Mechanical Endurance min.	2 x 10 ⁵ OPS	2 x 10 ⁵ OPS	2 x 10 ⁵ OPS
Electrical Endurance min.	1 x 10 ³ OPS	1 x 10 ³ OPS	1 x 10 ³ OPS

Layout (Bottom view)			
Terminal Type(coil/loads)	Lead Wire	Lead Wire	Lead Wire
Safety approval ratings			
File No.			
Safety approval ratings			
Page	59	67	71

Note: Specification and dimensions in this catalog are subject to change without notice.

SELECTION CHART

New Energy Relay

Type	HFZ20V-150P	HFZ20V-200P	
Appearance			
Dimensions(L x W x H) mm	54 x 40.3 x 60.3	68 x 50.6 x 58.3	
Features	<ul style="list-style-type: none"> Rated 150A switching capability Coil does not require polarity, contact load has polarity The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment. Small size, light weight 	<ul style="list-style-type: none"> Rated 200A switching capability Coil does not require polarity, contact load has polarity The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment. Small size, light weight 	
Contact Ratings			
Contact Form	1SH	1SH	
Contact material	Cu	Cu	
Max. Rated Switching Current			
Max. Switching Voltage	200VDC	200VDC	
Max. switching power	300kW	400kW	
Contact rating(Resistive load)	150A 200VDC	200A 200VDC	
Coil Ratings			
Nominal Voltage	(12~24)VDC	(12~24)VDC	
Power consumption	5.8.W, 5.2W	5.8.W, 5.2W	
Specifications			
Insulation Resistance	1000MΩ	1000MΩ	
Dielectric Strength (Between coil and contacts)	2000Vrms	2000Vrms	
Ambient Temperature	-40°C~ 85°C	-40°C~ 85°C	
Operate / Release Time max.	30ms / 10ms	30ms / 10ms	
Mechanical Endurance min.	1 x 10 ⁶ OPS	2 x 10 ⁵ OPS	
Electrical Endurance min.	6 x 10 ³ OPS	1 x 10 ⁴ OPS	
Layout (Bottom view)			
Terminal Type(coil/loads)	Lead Wire	Lead Wire	
Safety approval ratings			
File No.			
Safety approval ratings			
Page	75	80	

Note: Specification and dimensions in this catalog are subject to change without notice.

New Energy Relay



HFZ16V-30	11
HFZ16V-50	15
HFZ16V-100	20
HFZ16V-150	25
HFZ16V-200	29
HFZ16V-250	33
HFZ16V-50P	37
HFZ16V-100P	42
HFZ16V-150P	47
HFZ16V-200P	51
HFZ16V-250P	55
HFZ16V-300P	59
HFZ17V-50	63
HFZ18V-100P	67
HFZ18V-150P	71
HFZ20V-150P	75
HFZ20V-200P	80

HFZ16V-30

EPOXY SEALED NON-POLAR SERIES DC RELAYS



Features

- Rated 30A switching capability
- No polarity on the load and the coil
- The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment, coils and contacts do not oxidize and contaminate the environment.
- Pre-charging and other applications
- Small size, light weight

RoHS compliant

CONTACT DATA

Contact arrangement	1SH
Contact resistance	3mΩ max.(@ 10A)
Nominal current	30A
Rated load voltage	12~90VDC
Max. breaking current	300A 320VDC(more than 1 time)
Max. switching power	96kW
Min. load	1A 12VDC
Standard continuous charged current	30A(10mm ²)
Short time overload current	40A 18min (10mm ²) 50A 6min (10mm ²) 90A 30s (10mm ²)
Mechanical endurance	2x10 ⁵ OPS
Electrical endurance	1 x 10 ⁴ OPS(30A 450VDC, Resistive load, 23°C, 1s on 9s off)

COIL DATA

Nominal voltage (VDC)	12	24
Operating voltage (VDC)	9~16	18~32
Max. voltage (VDC)	16	32
Pick-up voltage (VDC)	≤9	≤18
Drop-out voltage (VDC)	≥1	≥2
Coil resistance x (1±7%)	40	152
Min. starting current (A)	--	--
Transient surge current (A)	--	--
Average holding current (A)	0.3	0.158
Steady-state power consumption (W)	Approx.3.6	Approx.3.8

Notes: Other rated voltages can be specially ordered.

CHARACTERISTICS

Insulation resistance	Between open contacts	1000MΩ (1000VDC)	
	Between contact and coil	1000MΩ (1000VDC)	
Dielectric strength	Between open contacts	2200Vrms	
	Between coil & contacts	2200Vrms	
Nominal voltage (VDC)		12	24
Operate time (ms)		≤30	≤30
Release time (ms)		≤10	≤10
Bounce time(ms)		≤5	≤5
Shock resistance		196 m/s ²	
Vibration resistance		10Hz to 500Hz 98m/s ²	
Ambient temperature		-40°C to 85°C	
Humidity		5% to 85% RH	
Protection grade		IP67	
Termination		The M4 internal thread	
Outline dimensions		53x36x39.5	
Weight		Approx.110g	

Notes: 1) The above values are the initial values at room temperature.
2) The test result can not meet the requirements of voltage resistance and insulation resistance.



HONGFA RELAY

ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2021 Rev. 1.00

ORDERING INFORMATION

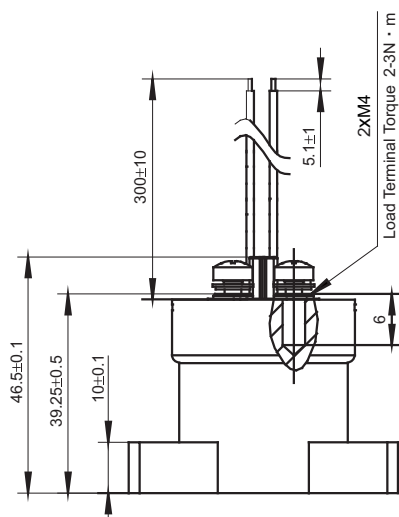
Type	HFZ16	<input type="checkbox"/>	-30/	900-	12-	SH	S	L	5	E	-1	(XXX)
Application	Nil: New Energy Power Control V : Vehicle											
Version	30: 30A											
Nominal voltage	900: 12~900VDC											
Coil voltage	12: 12VDC 24: 24VDC											
Contact arrangement	SH: 1 FormA(double-contact of 1 FormA)											
Contact material	S: Silver plated											
Coil terminal	L: Lead wire B: Lead wire with connector											
Load terminal	5: Internal thread mounting											
Appearance and structure	E: Simplified shell structure											
Sort	1: 1 coil											
Special code ¹⁾	XXX: Customer special requirement Nil: Standard											

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

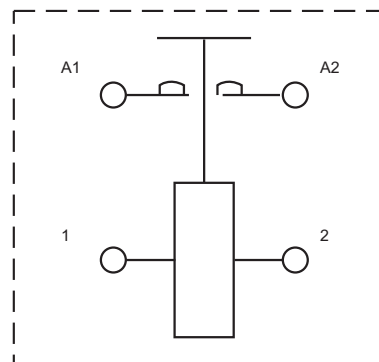
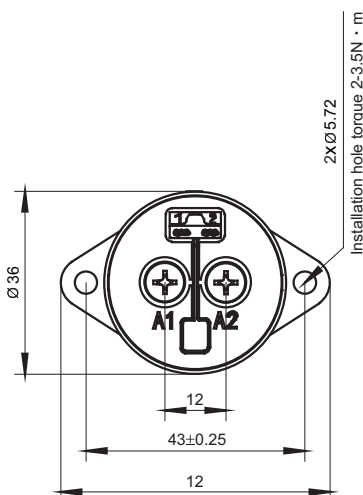
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT Unit: mm

Unit: mm

Outline Dimensions



PCB Layout (Bottom view)



Notes: 1) Dimension tolerance is not indicated for part of the overall dimension of the product. When the overall dimension is less than or equal to 10 mm, the tolerance is ± 0.3 mm; When the overall dimension is between (10 ~ 50) mm, the tolerance is ± 0.5 mm;

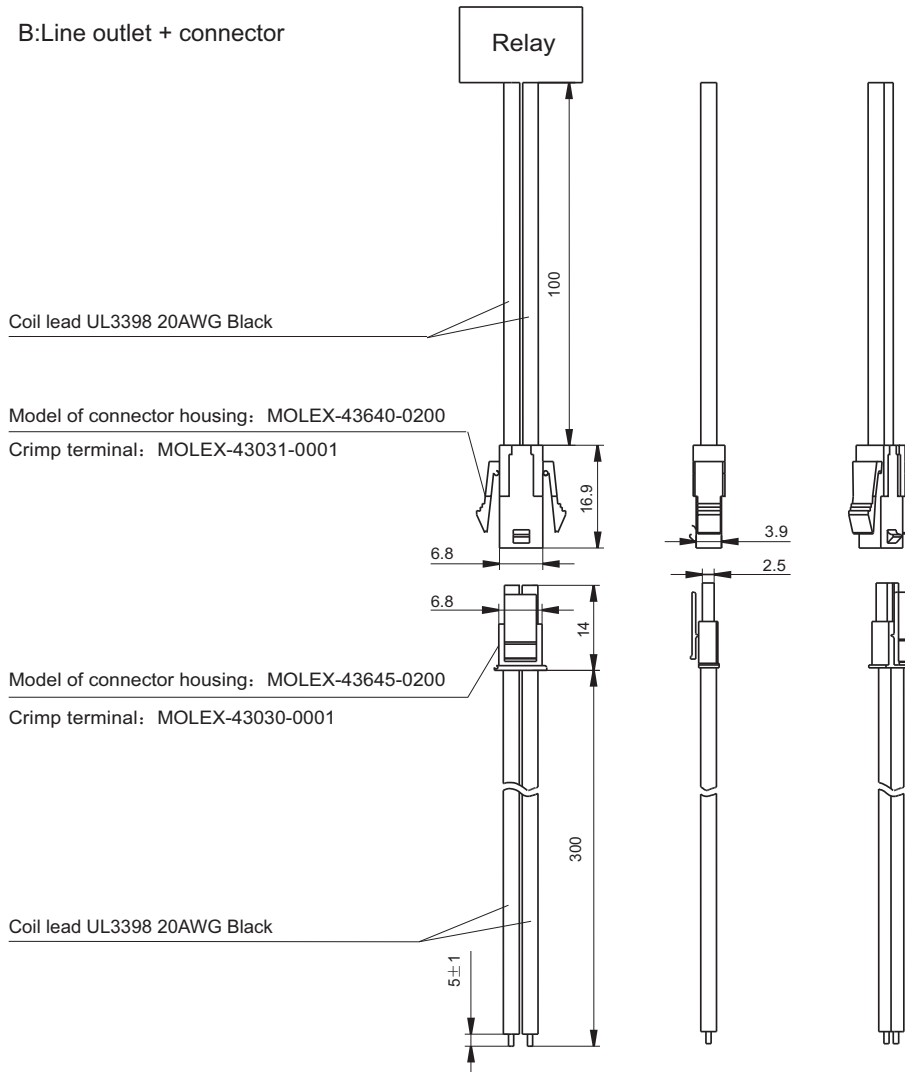
When the overall dimension is greater than or equal to 50 mm, the tolerance is ± 0.8 mm.

2) L: Coil lead specifications:UL3398,20AWG,black;Line length 300mm.

3) B: Line outlet + connector (See Figure).

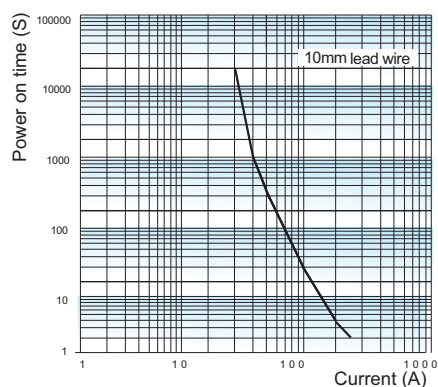
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm



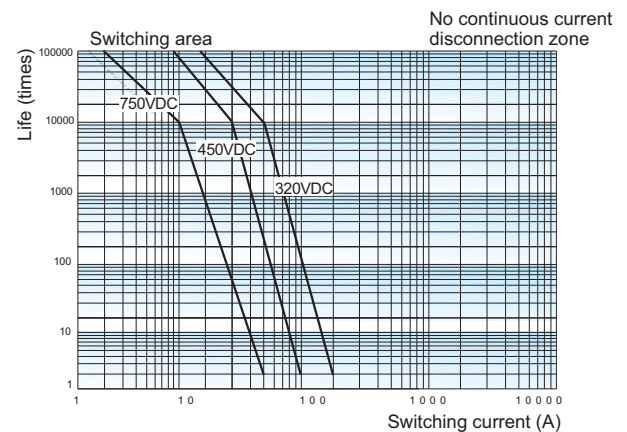
CHARACTERISTIC CURVES

Current carrying capacity



Notes: The above data are measured at room temperature for your reference only. Do not use it to select a fuse directly.

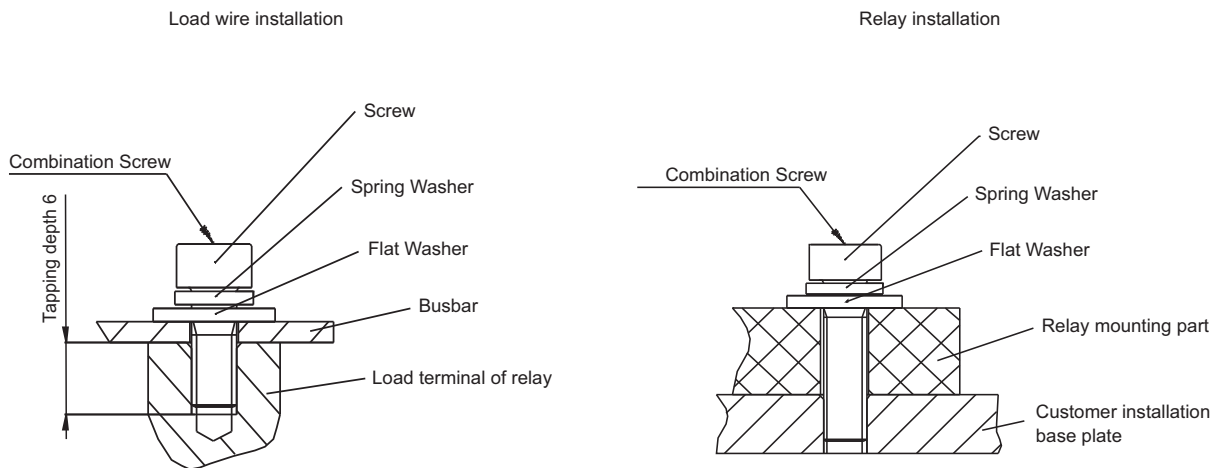
Load switching capability



Notes: Resistive load
Insulation after electrical life test $\geq 50\text{M}\Omega$ (500VDC)
As the lifetime is related to many factors, it is recommended to verify the ratings according to the actual application.

Precautions for use

1. In order to suppress the relay coil reverse electromotive force, it is recommended to connect bi-directional TVS diode or varistor with the coil in parallel (voltage is 1.5-2 times of rated voltage). If diode is used, the relay release time will be greatly prolonged, which may lead to the decline of cut-off performance.
Note: the energy-saving product has a coil suppression reverse electromotive force device.
2. The rated values of contact parameters are tested under resistive load. In the case of inductive load with $L/R > 1\text{ms}$, please connect inrush current protection devices for this load. If no measures are taken, electrical durability may decrease and on-off failure may occur. Please leave enough space when design.
3. As a HVDC switching device, it may fail at high temperature when the lifetime and load capacity exceed parameters specified in the manual. The protective circuit which can cut off the load in case of emergency shall be adopted. As a product with limited life, it should be replaced in time to ensure safety.
4. Please avoid grease and other foreign bodies on the terminal, and use connecting wires of 10mm^2 or above; When installing the load terminal, ensure that the power cable is close to the lead terminal. Install and tighten it in the sequence of flat washer, spring washer and nut, or directly use the self-locking nut. Contamination of the lead terminal or incorrect connection sequence can cause severe overheating and melting of the insulation of the connection cable.
5. Please use washers to prevent looseness during installation. Please control the locking torque within the recommended range. If it exceeds the range, it may cause damage to the shell. When using screws, make sure the gasket is thick and strong enough, otherwise it will deform and burst the casing.



Notes: Tapping depth of load internal thread M4 is 6mm.

Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. In case there is specific criterion (such as mission profile, technical specification, PPAP etc.) checked and agreed by and between customer and Hongfa, this specific criterion should be taken as standard regarding any requirement on Hongfa product.

We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

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HFZ16V-50-E EPOXY SEALED NON-POLAR SERIES DC RELAYS

cULus

File No.:E133481



File No.:CQC1400207409



Features

- Rated 50A switching capability
- No polarity on the load and the coil
- The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment, coils and contacts do not oxidize and contaminate the environment.
- Pre-charging and other applications
- Small size, light weight

RoHS compliant

CONTACT DATA

Contact arrangement	1SH
Contact resistance	30mΩ max. (typ. 0.5m) (6VDC, 20A)
Nominal current	50A
Rated load voltage	12VDC to 900VDC
Max. breaking current	500A 320VDC (more than 1 time)
Max. switching power	160kW
Min. load	1A 12VDC
Standard continuous charged current	50A (16mm ²)
Short time overload current	75A 15min (16mm ²) 100A 3min (16mm ²) 150A 30s (16mm ²)
Mechanical endurance	1x10 ⁶ OPS
Electrical endurance	1 x 10 ⁴ OPS (50A 450VDC, Resistive load, 23°C, 1s on 9s off)

COIL DATA

Nominal voltage (VDC)	12	24
Operating voltage (VDC)	9~16	18~32
Max. voltage (VDC)	16	32
Pick-up voltage (VDC)	≤9	≤18
Drop-out voltage (VDC)	≥1	≥2
Coil resistance x (1±7%)	26	96
Min. starting current (A)	0.46	0.25
Transient surge current (A)	--	--
Average holding current (A)	0.46	0.25
Steady-state power consumption (W)	Approx. 5.5	Approx. 6

Notes: Other rated voltages can be specially ordered.

CHARACTERISTICS

Insulation resistance	Between open contacts	1000MΩ (1000VDC)	
	Between contact and coil	1000MΩ (1000VDC)	
Dielectric strength	Between open contacts	2200Vrms	
	Between coil & contacts	2200Vrms	
Nominal voltage (VDC)		12	24
Operate time (ms)		≤30	≤30
Release time (ms)		≤10	≤10
Bounce time (ms)		≤5	≤5
Shock resistance		196 m/s ²	
Vibration resistance		10Hz to 500Hz 98m/s ²	
Ambient temperature		-40°C to 85°C	
Humidity		5% to 95%RH	
Protection grade		IP67	
Termination		The M4 internal thread	
Outline dimensions		54x40.3x58.3 53.3x41.1x58	
Weight		220g	

Notes: 1) The above values are the initial values at room temperature.
2) The test result can not meet the requirements of voltage resistance and insulation resistance.



HONGFA RELAY

ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2021 Rev. 1.00

ORDERING INFORMATION

Type	HFZ16	<input type="checkbox"/>	-50/	900-	12-	SH	S	L	5	Y	E	-1	(XXX)
Application	Nil: New energy power control V : Vehicle												
Version	50: 50A												
Nominal voltage	900: 12~900VDC												
Coil voltage	12: 12VDC 24: 24VDC												
Contact arrangement	SH: 1 FormA(double-contact of 1 FormA)												
Contact material	S: Silver plated												
Coil terminal	L: Lead wire B: Lead wire with connector												
Load terminal	5: Internal thread mounting												
Installation method	Nil: Vertical Y: Horizontal												
Appearance and structure	E: Simplified shell structure												
Sort	1: 1 coil												
Special code ¹⁾	XXX: Customer special requirement												

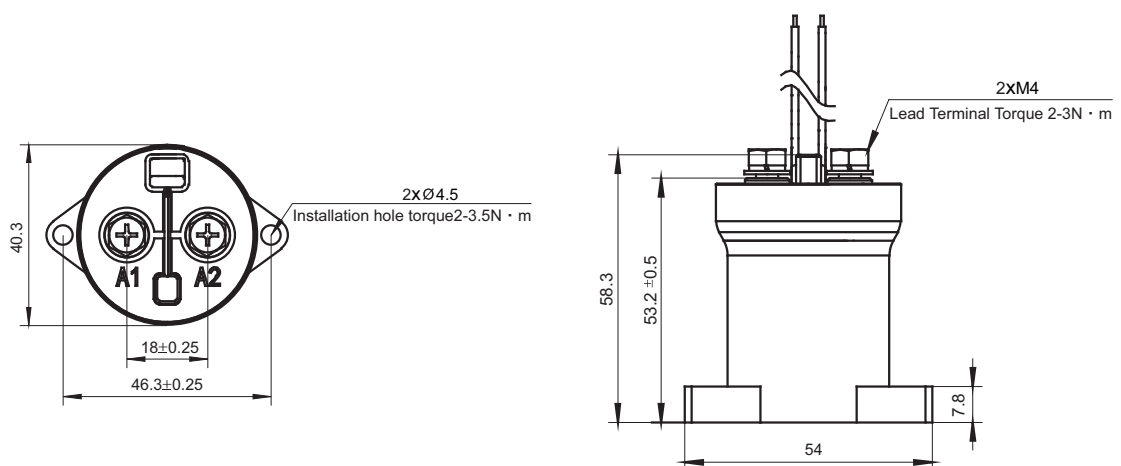
Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Outline Dimensions

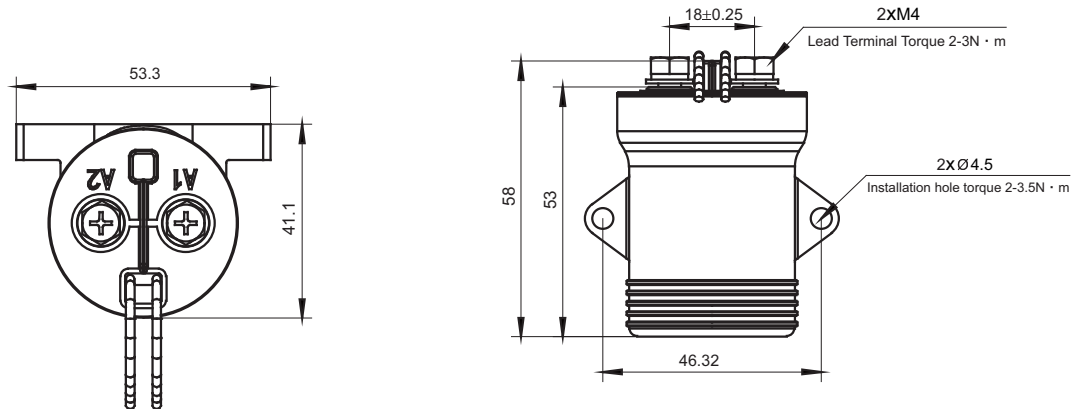
Vertical



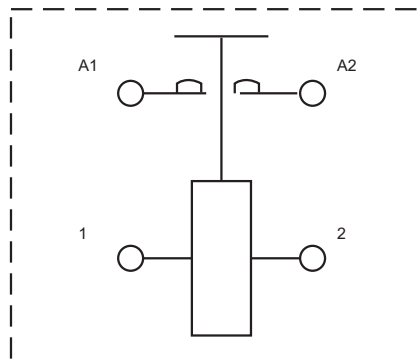
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Horizontal



PCB Layout (Bottom view)



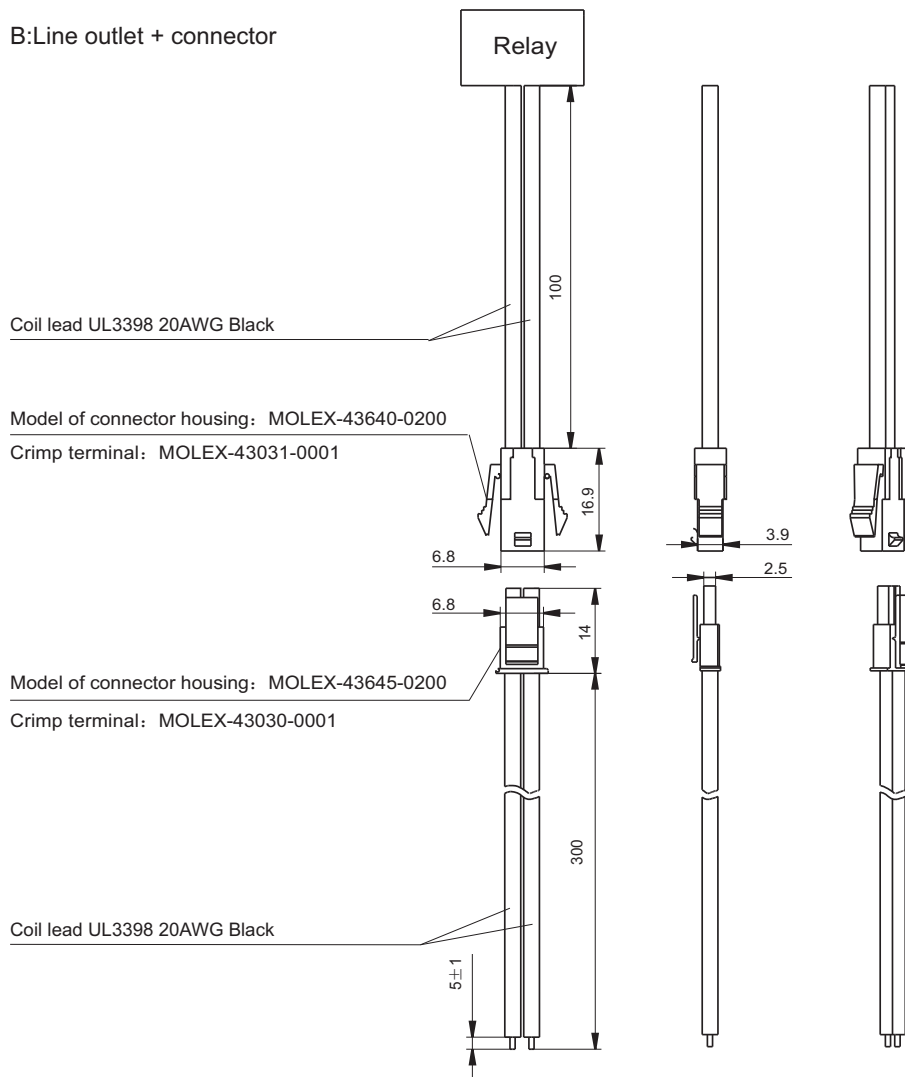
A1, A2 are the load terminals; 1 and 2 are the coil terminals; no polarity on the load terminal and the coil terminal.

- Notes:**
- 1) Dimension tolerance is not indicated for part of the overall dimension of the product. When the overall dimension is less than or equal to 10 mm, the tolerance is ± 0.3 mm; When the overall dimension is between (10 ~ 50) mm, the tolerance is ± 0.5 mm; When the overall dimension is greater than or equal to 50 mm, the tolerance is ± 0.8 mm.
 - 2) L: Coil lead specifications: UL3398, 20AWG, black; Line length 300mm.
 - 3) B: Line outlet + connector (See Figure).

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

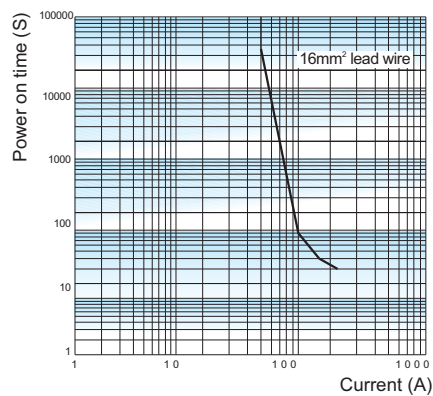
Unit: mm

B:Line outlet + connector



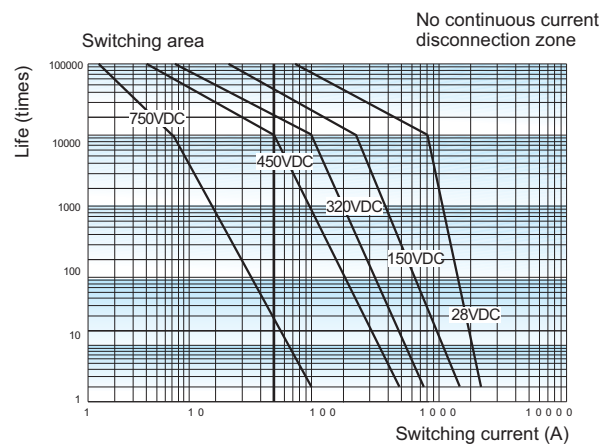
CHARACTERISTIC CURVES

Current carrying capacity



Notes: The above data are measured at room temperature for your reference only. Do not use it to select a fuse directly.

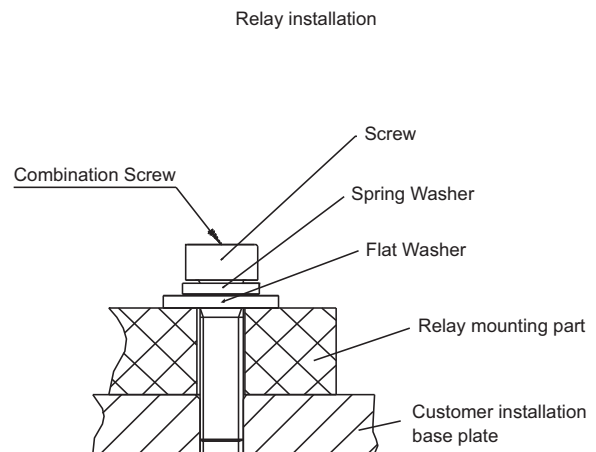
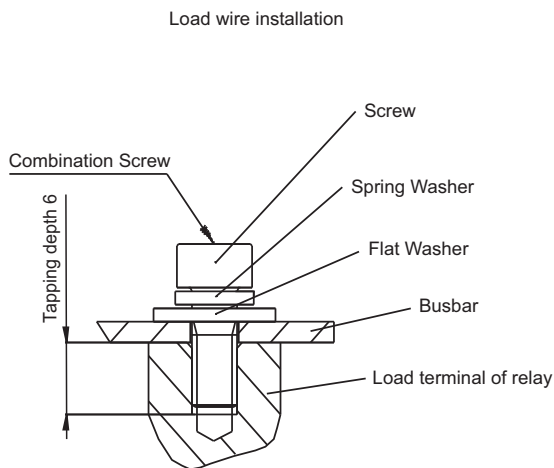
Load switching capability



Notes: Resistive load
Insulation after electrical life test $\geq 50\text{M}\Omega$ (500VDC)
As the lifetime is related to many factors, it is recommended to verify the ratings according to the actual application.

Precautions for use

1. In order to suppress the relay coil reverse electromotive force, suggest to connect the coil with nonlinear resistor parallelly (variable resistance is recommended to use, maximum energy tolerance $> 1 \text{ J}$, voltage in 1.5-2 times of the rated voltage, if use diode, the release time will greatly lengthen and degrade the cutting performance. (Energy-saving products have built-in suppression reverse electromotive force circuit, surge suppression devices are not required)
2. The rated values of contact parameters are tested under resistive load. In the case of inductive load with $L/R > 1 \text{ ms}$, please connect inrush current protection devices for this load. If no measures are taken, electrical durability may decrease and on-off failure may occur. Please leave enough space when design.
3. As a HVDC switching device, it may fail at high temperature when the lifetime and load capacity exceed parameters specified in the manual. The protective circuit which can cut off the load in case of emergency shall be adopted. As a product with limited life, it should be replaced in time to ensure safety.
4. Please avoid grease and other foreign bodies on the terminal, and use connecting wires of 16 mm^2 or above; When installing the load terminal, ensure that the power cable is close to the lead terminal. Install and tighten it in the sequence of flat washer, spring washer and nut, or directly use the self-locking nut. Contamination of the lead terminal or incorrect connection sequence can cause severe overheating and melting of the insulation of the connection cable.
5. Please use washers to prevent looseness during installation. Please control the locking torque within the recommended range. If it exceeds the range, it may cause damage to the shell. When using screws, make sure the gasket is thick and strong enough, otherwise it will deform and burst the casing.



Notes: Tapping depth of load internal thread M4 is 6mm.

Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. In case there is specific criterion (such as mission profile, technical specification, PPAP etc.) checked and agreed by and between customer and Hongfa, this specific criterion should be taken as standard regarding any requirement on Hongfa product.

We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

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HFZ16V-100-E

EPOXY SEALED NON-POLAR SERIES DC RELAYS



File No.:20151202-E133481



File No.:2016010304857640



Features

- Rated 100A switching capability
- No polarity on the load and the coil
- The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment, coils and contacts do not oxidize and contaminate the environment.
- Pre-charging and other applications
- Small size, light weight

RoHS compliant

CONTACT DATA

Contact arrangement	1SH
Contact resistance	30mΩ max. (typ. 0.5m) (6VDC, 20A)
Nominal current	100A
Rated load voltage	12VDC to 900VDC
Max. breakin current	1000A 320VDC (more than 1 time)
Max. switching power	320kW
Min. load	1A 12VDC
Standard continuous charged current	100A(35mm ²)
Short time overload current	150A 15min (35mm ²) 200A 3min (35mm ²) 300A 30s (35mm ²)
Mechanical endurance	1x10 ⁶ OPS
Electrical endurance	1 x 10 ⁴ OPS (100A 450VDC, Resistive load, 23°C, 1s on 9s off)

COIL DATA

Nominal voltage (VDC)	12	24
Operating voltage (VDC)	9~16	18~32
Max. voltage (VDC)	16	32
Pick-up voltage (VDC)	≤9	≤18
Drop-out voltage (VDC)	≥1	≥2
Coil resistance x (1±7%)	26	96
Min. starting current (A)	0.46	0.25
Transient surge current (A)	--	--
Average holding current (A)	0.46	0.25
Steady-state power consumption (W)	Approx. 5.5	Approx. 6

Notes: Other rated voltages can be specially ordered.

CHARACTERISTICS

Insulation resistance	Between open contacts	1000MΩ (1000VDC)
	Between contact and coil	1000MΩ (1000VDC)
Dielectric strength	Between open contacts	2200Vrms
	Between coil & contacts	2200Vrms
Nominal voltage (VDC)		12 24
Operate time (ms)		≤30 ≤30
Release time (ms)		≤10 ≤10
Bounce time(ms)		≤5 ≤5
Shock resistance		196 m/s ²
Vibration resistance		10Hz to 500Hz 98m/s ²
Ambient temperature		-40°C to 85°C
Humidity		5% to 95%RH
Protection grade		IP67
Termination		The M5 internal thread
Outline dimensions		54x40.3x58.3 53.3x41.1x58
Weight		220g

Notes: 1) The above values are the initial values at room temperature.
2) The test result can not meet the requirements of voltage resistance and insulation resistance.



HONGFA RELAY

ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2021 Rev. 1.00

ORDERING INFORMATION

Type	HFZ16	<input type="checkbox"/>	-100/	900-	12-	SH	S	L	5	Y	E	-1	(XXX)
Application	Nil: New energy power control V : Vehicle												
Version	100: 100A												
Nominal voltage	900: 12~900VDC												
Coil voltage	12: 12VDC 24: 24VDC												
Contact arrangement	SH: 1 FormA(double-contact of 1 Form A)												
Contact material	S: Silver plated												
Coil terminal	L: Lead wire B: Lead wire with connector												
Load terminal	5: Internal thread mounting												
Installation method	Nil: Vertical Y: Horizontal												
Appearance and structure	E: Simplified shell structure												
Sort	1: 1 coil												
Special code ¹⁾	XXX: Customer special requirement												

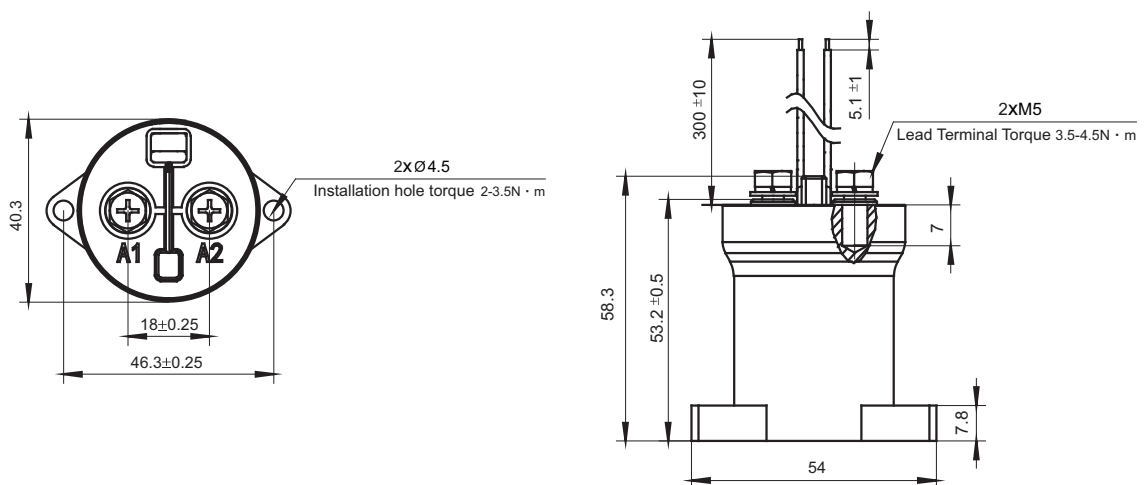
Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Outline Dimensions

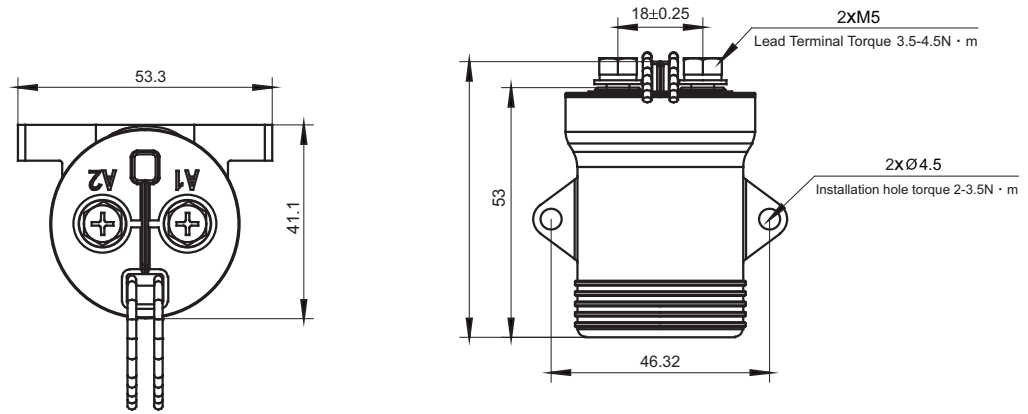
Vertical



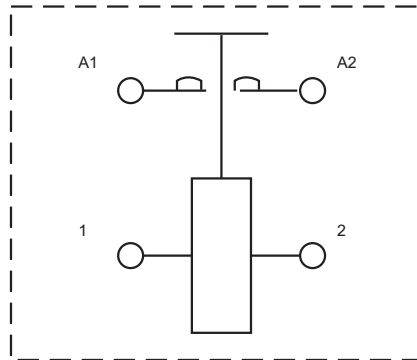
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Horizontal



PCB Layout (Bottom view)



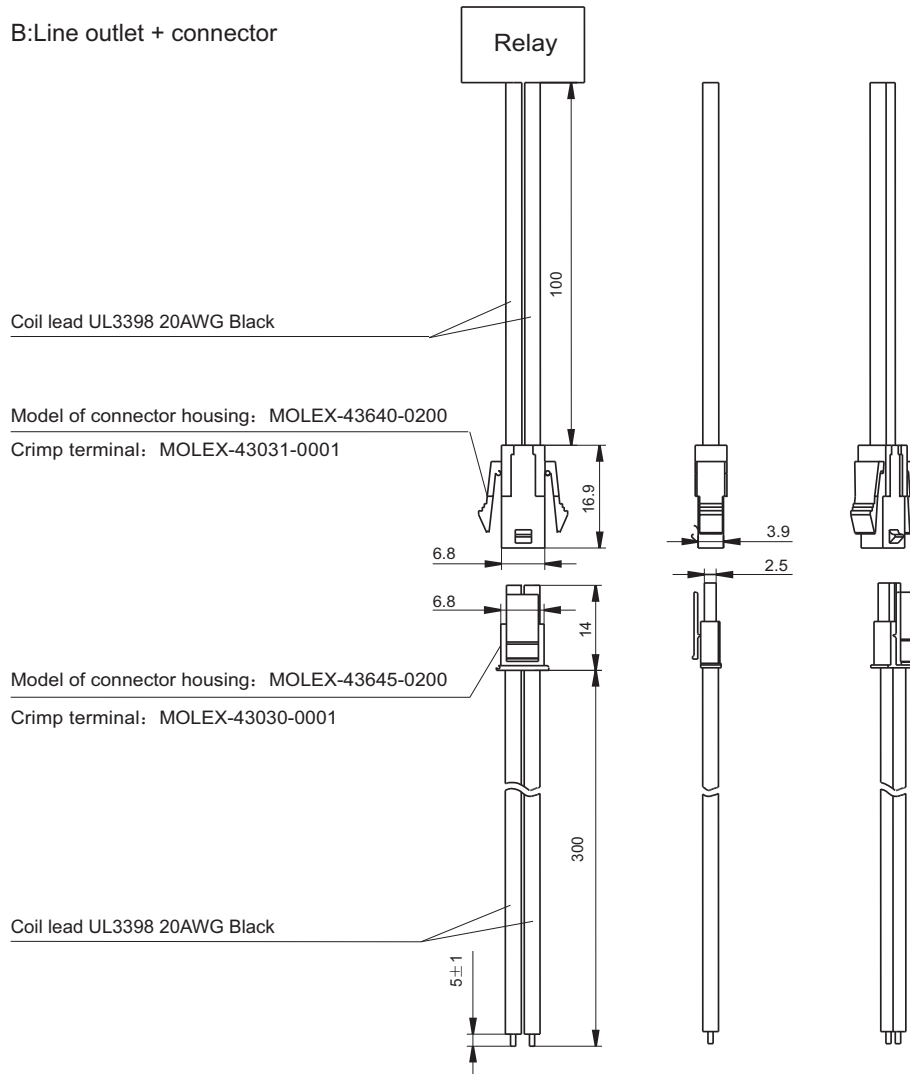
A1, A2 are the load terminals; 1 and 2 are the coil terminals; no polarity on the load terminal and the coil terminal.

- Notes:**
- 1) Dimension tolerance is not indicated for part of the overall dimension of the product. When the overall dimension is less than or equal to 10 mm, the tolerance is ± 0.3 mm; When the overall dimension is between (10 ~ 50) mm, the tolerance is ± 0.5 mm; When the overall dimension is greater than or equal to 50 mm, the tolerance is ± 0.8 mm.
 - 2) L: Coil lead specifications: UL3398, 20AWG, black; Line length 300mm.
 - 3) B: Line outlet + connector (See Figure).

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

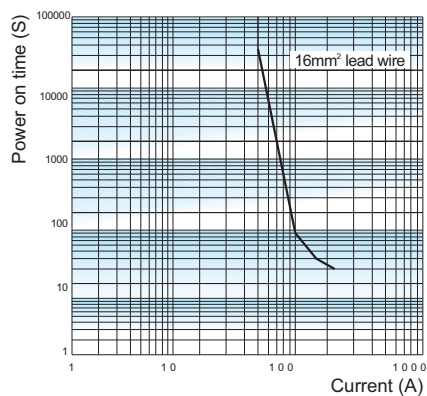
Unit: mm

B:Line outlet + connector



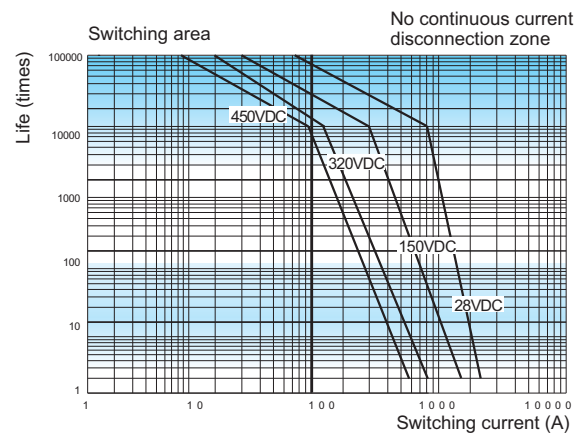
CHARACTERISTIC CURVES

Current carrying capacity



Notes: The above data are measured at room temperature for your reference only. Do not use it to select a fuse directly.

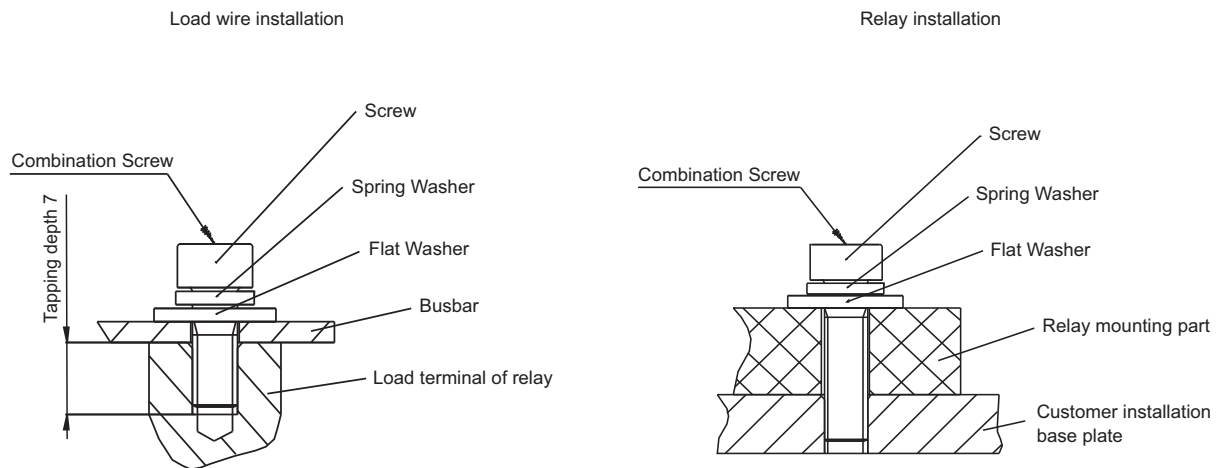
Load switching capability



Notes: Resistive load
Insulation after electrical life test $\geq 50M\Omega$ (500VDC)
As the lifetime is related to many factors, it is recommended to verify the ratings according to the actual application.

Precautions for use

1. In order to suppress the relay coil reverse electromotive force, suggest to connect the coil with nonlinear resistor parallelly (variable resistance is recommended to use, maximum energy tolerance > 1 j, voltage in 1.5-2 times of the rated voltage, if use diode, the release time will greatly lengthen and degrade the cutting performance. (Energy-saving products have built-in suppression reverse electromotive force circuit, surge suppression devices are not required)
2. The rated values of contact parameters are tested under resistive load. In the case of inductive load with $L/R > 1\text{ms}$, please connect inrush pcurrent rotection devices for this load. If no measures are taken, electrical durability may decrease and on-off failure may occur. Please leave enough space when design.
3. As a HVDC switching device, it may fail at high temperature when the lifetime and load capacity exceed parameters specified in the manual. The protective circuit which can cut off the load in case of emergency shall be adopted. As a product with limited life, it should be replaced in time to ensure safety.
4. Please avoid grease and other foreign bodies on the terminal, and use connecting wires of 35mm^2 or above; When installing the load terminal, ensure that the power cable is close to the lead terminal. Install and tighten it in the sequence of flat washer, spring washer and nut, or directly use the self-locking nut. Contamination of the lead terminal or incorrect connection sequence can cause severe overheating and melting of the insulation of the connection cable.
5. Please use washers to prevent looseness during installation. Please control the locking torque within the recommended range. If it exceeds the range, it may cause damage to the shell. When using screws, make sure the gasket is thick and strong enough, otherwise it will deform and burst the casing.



Notes: Tapping depth of load internal M5 is 7mm.

Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. In case there is specific criterion (such as mission profile, technical specification, PPAP etc.) checked and agreed by and between customer and Hongfa, this specific criterion should be taken as standard regarding any requirement on Hongfa product.

We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

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HFZ16V-150/E EPOXY SEALED NON-POLAR SERIES DC RELAYS

c us

File No.:20151202-E133481



File No.:2016010304860448



Features

- Rated 150A switching capability
- No polarity on the load and the coil
- The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment, coils and contacts do not oxidize and contaminate the environment.
- Main circuit and other applications
- Optional built-in energy-saving coil to keep the power low and suppress the reverse electromotive force

RoHS compliant

CONTACT DATA

Contact arrangement	1SH
Contact resistance	0.5mΩ max. (@150A)
Nominal current	150A
Rated load voltage	12VDC to 900VDC
Max. breaking current	1500A 320VDC (more than 1 time)
Max. switching power	480kW
Min. load of main contact	1A 12VDC
Standard continuous charged current	8V 100mA
Short time overload current	150A(50mm ²) 250A 5min (50mm ²) 300A 3min (50mm ²) 400A 30s (50mm ²)
Mechanical endurance	2x10 ⁵ OPS
Electrical endurance	1 x 10 ⁴ OPS (150A 450VDC Resistive load, 23°C, 1s on 9s off)

CHARACTERISTICS

Insulation resistance	Between open contacts	1000MΩ (1000VDC)
	Between contact and coil	1000MΩ (1000VDC)
Dielectric strength	Between open contacts	2000Vrms
	Between coil & contacts	2000Vrms
Nominal voltage (VDC)		12/24
Operate time (ms)		≤30
Release time (ms)		≤10
Bounce time(ms)		≤5
Shock resistance		196 m/s ²
Vibration resistance		10Hz to 500Hz 49m/s ²
Ambient temperature		-40°C to 85°C
Humidity		5% to 95%RH
Protection grade		IP67
Termination		The M8 external thread
Outline dimensions		80.5 X 66 X 72.3
Weight		440g

Notes: 1) The above values are the initial values at room temperature.
2) The test result can not meet the requirements of voltage resistance and insulation resistance.

COIL DATA

Nominal voltage (VDC)	12/24
Operating voltage (VDC)	9~36
Max. voltage (VDC)	36
Pick-up voltage (VDC)	≤9
Drop-out voltage (VDC)	≥5
Coil resistance x (1±7%)	3.1
Min. starting current (A)	3
Transient surge current (A)	3.5(0.1s)
Average holding current (A)	Approx.0.14
Steady-state power consumption (W)	Approx. 2

Notes: Other rated voltages can be specially ordered.



HONGFA RELAY

ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2021 Rev. 1.00

ORDERING INFORMATION

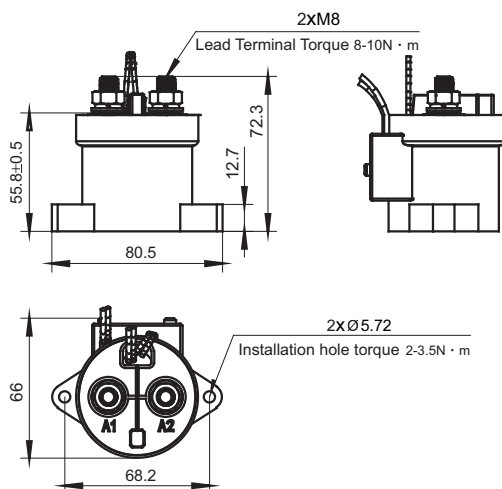
Type	HFZ16	<input type="checkbox"/>	-150/ 900-	B-	SH-	S	A	L	4	<input type="checkbox"/>	E	P	-1	(XXX)
Application	Nil: New Energy Power Control V : Vehicle													
Version	150: 150A													
Nominal voltage	900: 12~900VDC													
Coil voltage	B: 9~36VDC													
Contact arrangement	SH: 1 FormA(double-contact of 1 FormA)													
Contact material	S: Silver plated													
Auxiliary Contact Form	Nil: Without auxiliary contact A: Normally open auxiliary contact B: Normally closed auxiliary contact C: Conversion auxiliary contact													
Coil terminal	L: Lead wire B: Lead wire with connector													
Load terminal	4: External thread mounting													
Installation method	Nil: Vertical													
Appearance and ttructure	E: Simplified shell structure													
Coil power consumption	P: energy-saving													
Sort	1: 1 coil													
Special code ¹⁾	XXX: Customer special requirement Nil: Standard													

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

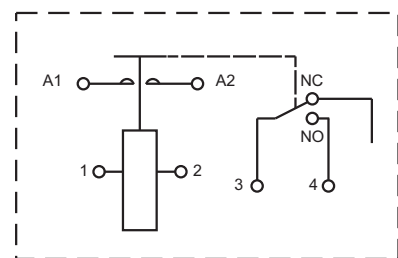
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Outline Dimensions



PCB Layout (Bottom view)

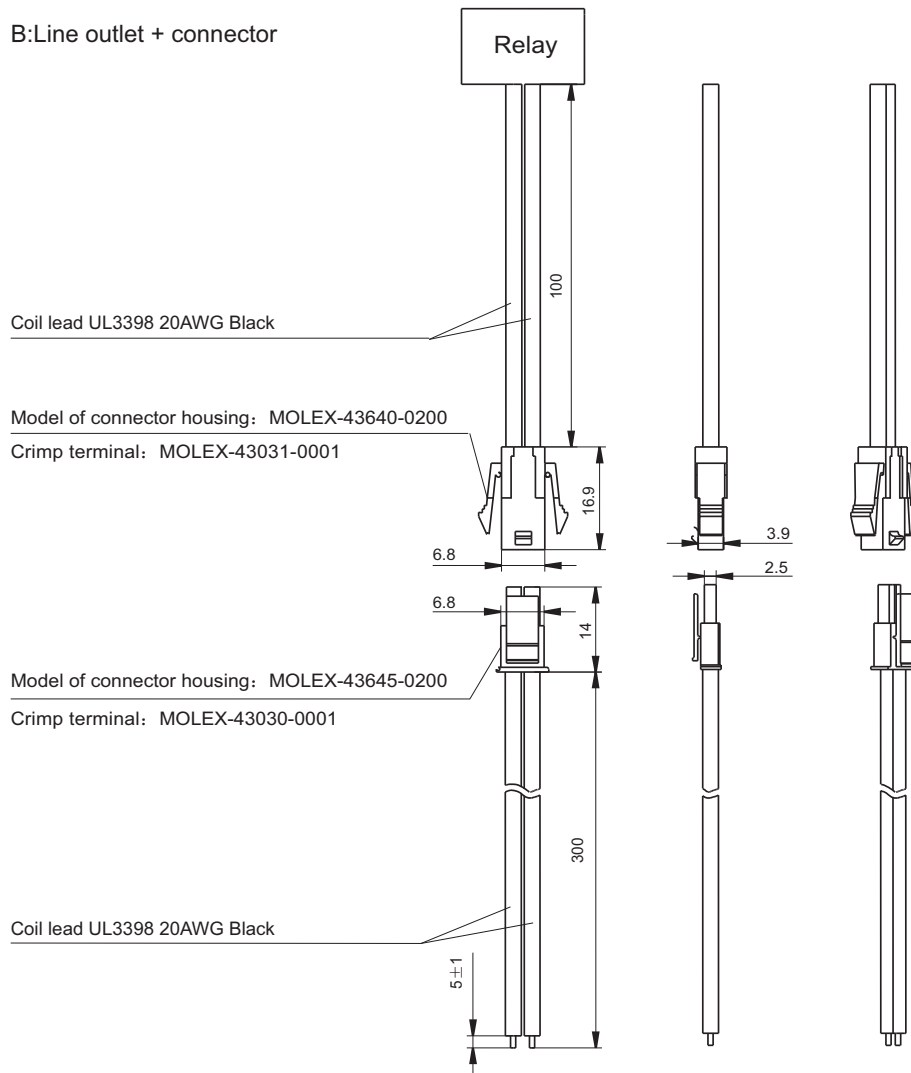


- Notes: 1) Dimension tolerance is not indicated for part of the overall dimension of the product. When the overall dimension is less than or equal to 10 mm, the tolerance is ± 0.3 mm; When the overall dimension is between (10 ~ 50) mm, the tolerance is ± 0.5 mm; When the overall dimension is greater than or equal to 50 mm, the tolerance is ± 0.8 mm.
- 2) L : Coil lead specifications: UL3321, 22AWG, black; Line length 300mm; Specifications of auxiliary contact lead wire : UL3398, 20AWG, Black; length 300 mm.
- 3) B: Line outlet + connector (See Figure).

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

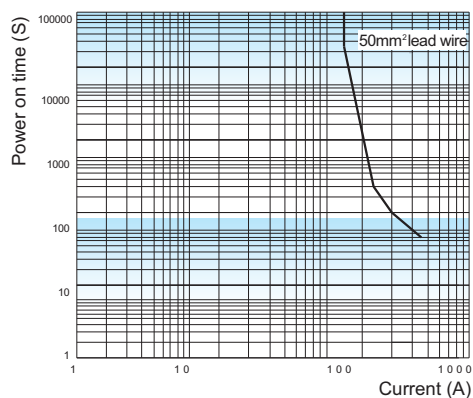
Unit: mm

B:Line outlet + connector



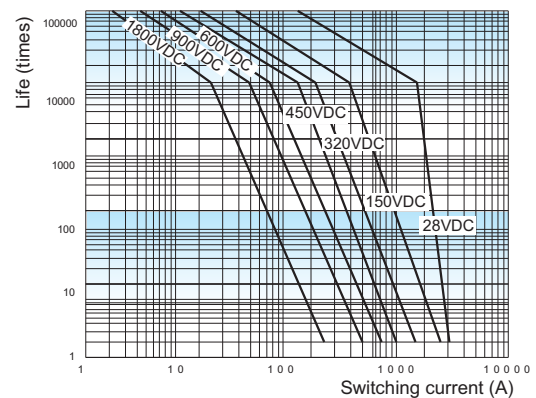
CHARACTERISTIC CURVES

Current carrying capacity



Notes: The above data are measured at room temperature for your reference only. Do not use it to select a fuse directly.

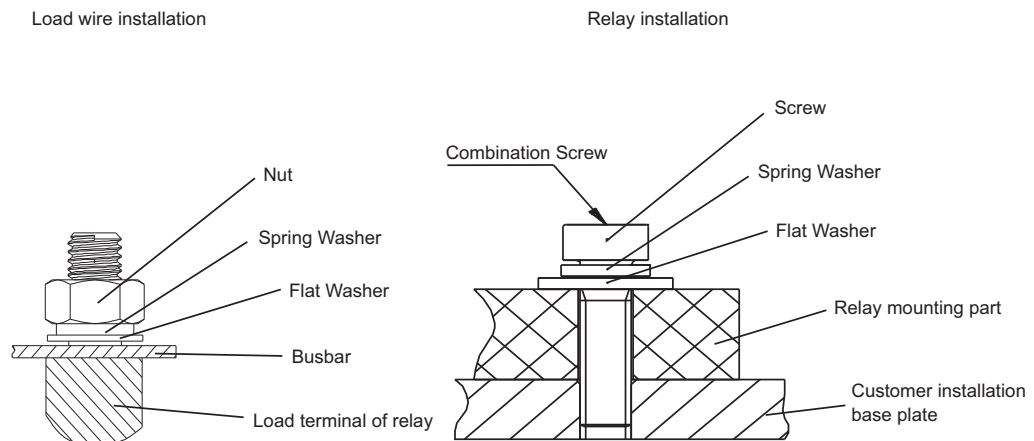
Load switching capability



Notes: Resistive load
Insulation after electrical life test $\geq 50M\Omega$ (500VDC)
As the lifetime is related to many factors, it is recommended to verify the ratings according to the actual application.

Precautions for use

1. In order to suppress the relay coil reverse electromotive force, it is recommended to connect bi-directional TVS diode or varistor with the coil in parallel (voltage is 1.5-2 times of rated voltage). If diode is used, the relay release time will be greatly prolonged, which may lead to the decline of cut-off performance.
Note: the energy-saving product has a coil suppression reverse electromotive force device.
2. The rated values of contact parameters are tested under resistive load. In the case of inductive load with $L/R > 1\text{ms}$, please connect inrush current protection devices for this load. If no measures are taken, electrical durability may decrease and on-off failure may occur. Please leave enough space when design.
3. As a HVDC switching device, it may fail at high temperature when the lifetime and load capacity exceed parameters specified in the manual. The protective circuit which can cut off the load in case of emergency shall be adopted. As a product with limited life, it should be replaced in time to ensure safety.
4. Please avoid grease and other foreign bodies on the terminal, and use connecting wires of 50mm^2 or above; When installing the load terminal, ensure that the power cable is close to the lead terminal. Install and tighten it in the sequence of flat washer, spring washer and nut, or directly use the self-locking nut. Contamination of the lead terminal or incorrect connection sequence can cause severe overheating and melting of the insulation of the connection cable.
5. Please use washers to prevent looseness during installation. Please control the locking torque within the recommended range. If it exceeds the range, it may cause damage to the shell. When using screws, make sure the gasket is thick and strong enough, otherwise it will deform and burst the casing.



Notes: Load external thread M8.

Disclaimer

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We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

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HFZ16V-200/E EPOXY SEALED NON-POLAR SERIES DC RELAYS

c  US

File No.:20151202-E133481



File No.:2016010304860448



Features

- Rated 200A switching capability
- No polarity on the load and the coil
- The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment, coils and contacts do not oxidize and contaminate the environment.
- Main circuit and other applications
- Optional built-in energy-saving coil to keep the power low and suppress the reverse electromotive force

RoHS compliant

CONTACT DATA

Contact arrangement	1SH
Contact resistance	0.5mΩ max. (@200A)
Nominal current	200A
Rated load voltage	12~900VDC
Max. breaking current	2000A 320VDC (more than 1 time)
Max. switching power	640kW
Min. load of main contact	1A 12VDC
Min. load of auxiliary contact	8V 100mA
Standard continuous charged current	200A(95mm ²)
Short time overload current	320A 5min (95mm ²) 400A 3min (95mm ²) 500A 30s (95mm ²)
Mechanical endurance	2x10 ⁵ OPS
Electrical endurance	1 x 10 ⁴ OPS (150A 450VDC Resistive load, 23°C, 1s on 9s off)

CHARACTERISTICS

Insulation resistance	Between open contacts	1000MΩ (1000VDC)
	Between contact and coil	1000MΩ (1000VDC)
Dielectric strength	Between open contacts	2000Vrms
	Between coil & contacts	2000Vrms
Nominal voltage (VDC)		12/24
Operate time (ms)		≤30
Release time (ms)		≤10
Bounce time(ms)		≤5
Shock resistance		196 m/s ²
Vibration resistance		10Hz to 500Hz 49m/s ²
Ambient temperature		-40°C to 85°C
Humidity		5% to 95%RH
Protection grade		IP67
Termination		The M8 external thread
Outline dimensions		80.5 X 66 X 72.3
Weight		440g

Notes: 1) The above values are the initial values at room temperature.
2) The test result can not meet the requirements of voltage resistance and insulation resistance.

COIL DATA

Nominal voltage (VDC)	12/24
Operating voltage (VDC)	9~36
Max. voltage (VDC)	36
Pick-up voltage (VDC)	≤9
Drop-out voltage (VDC)	≥5
Coil resistance x (1±7%)	3.1
Min. starting current (A)	3
Transient surge current (A)	3.5(0.1s)
Average holding current (A)	Approx. 0.14
Steady-state power consumption (W)	Approx. 2

Notes: Other rated voltages can be specially ordered.



HONGFA RELAY

ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2021 Rev. 1.00

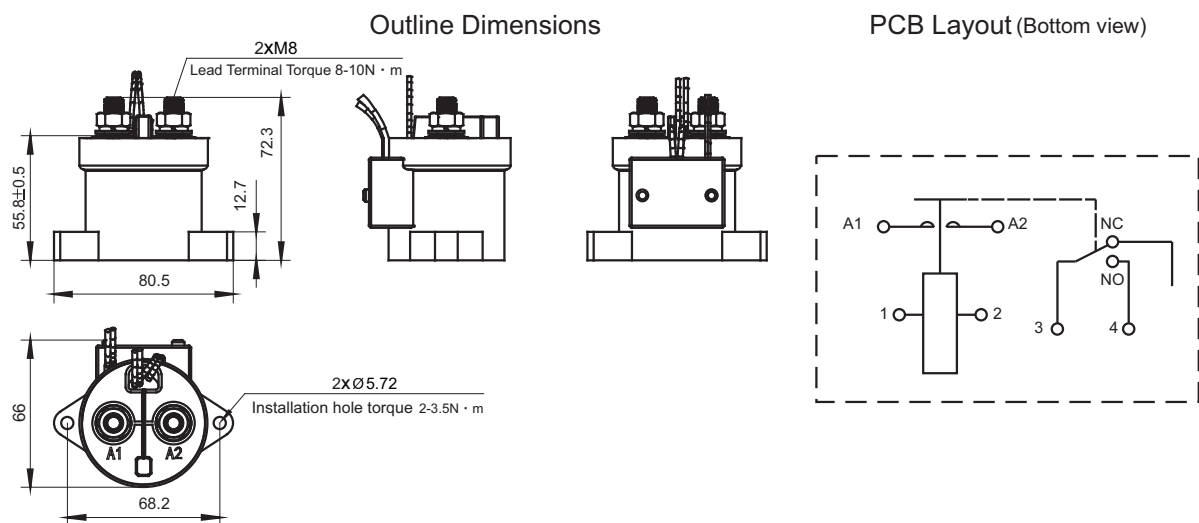
ORDERING INFORMATION

Type	HFZ16	<input type="checkbox"/>	-200/ 900-	B-	SH-	S	A	L	4	<input type="checkbox"/>	E	P	-1	(XXX)
Application	Nil: New Energy Power Control V : Vehicle													
Version	200: 200A													
Nominal voltage	900: 12~900VDC													
Coil voltage	B: 9~36VDC													
Contact arrangement	SH: 1 FormA(double-contact of 1 FormA)													
Contact material	S: Silver plated													
Auxiliary Contact Form	Nil: Without auxiliary contact A: Normally open auxiliary contact B: Normally closed auxiliary contact C: Conversion auxiliary contact													
Coil terminal	L: Lead wire B: Lead wire with connector													
Load terminal	4: External thread mounting													
Installation method	Nil: Vertical													
Appearance and ttructure	E: Simplified shell structure													
Coil power consumption	P: energy-saving													
Sort	1: 1 coil													
Special code ¹⁾	XXX: Customer special requirement Nil: Standard													

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

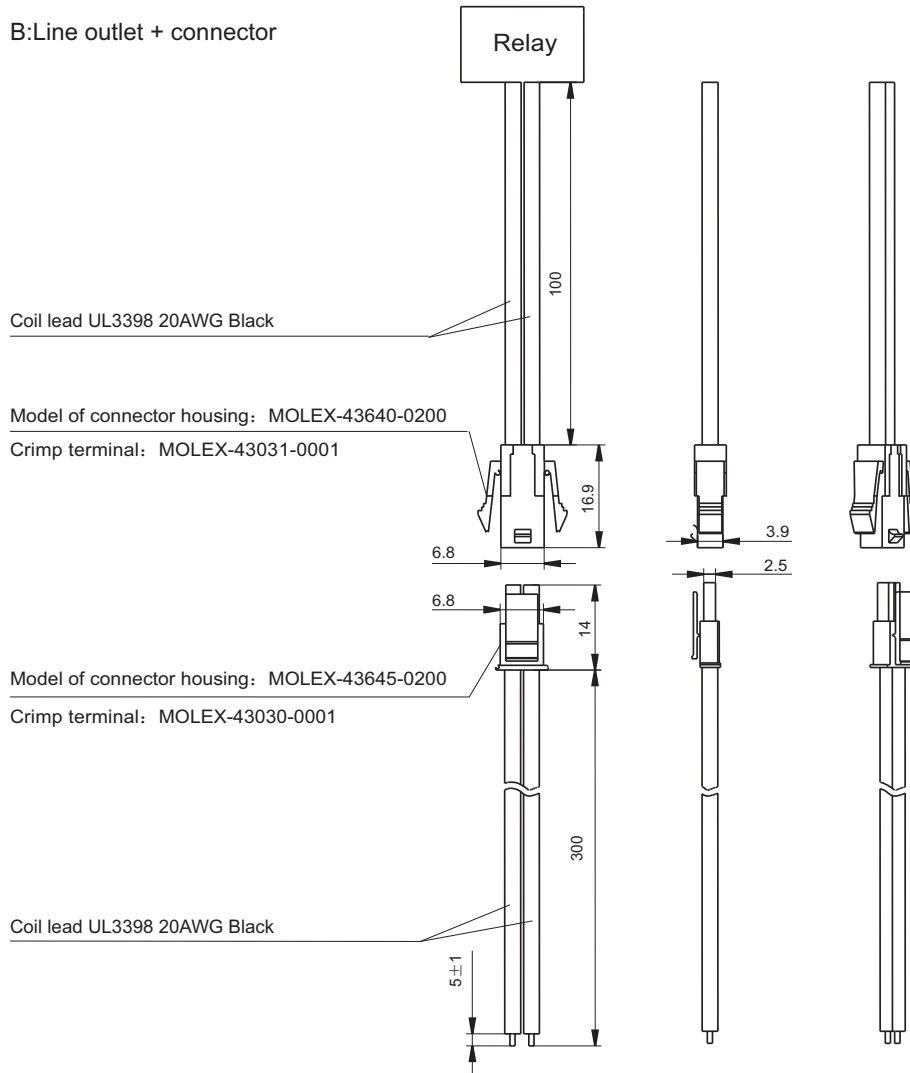


- Notes:
- 1) Dimension tolerance is not indicated for part of the overall dimension of the product. When the overall dimension is less than or equal to 10 mm, the tolerance is ± 0.3 mm; When the overall dimension is between (10 ~ 50) mm, the tolerance is ± 0.5 mm; When the overall dimension is greater than or equal to 50 mm, the tolerance is ± 0.8 mm.
 - 2) L: Coil lead specifications: UL3321, 22AWG, black; Line length 300mm; Specifications of auxiliary contact lead wire: UL3398, 20AWG, Black; length 300 mm.
 - 3) B: Line outlet + connector (See Figure).

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

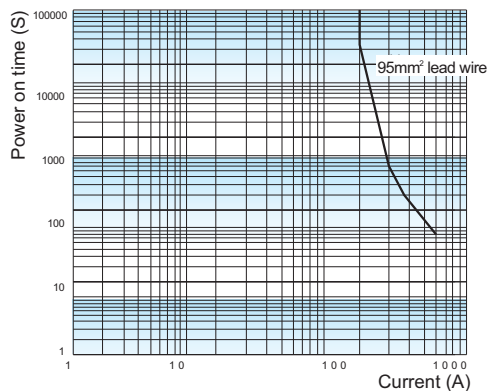
Unit: mm

B:Line outlet + connector



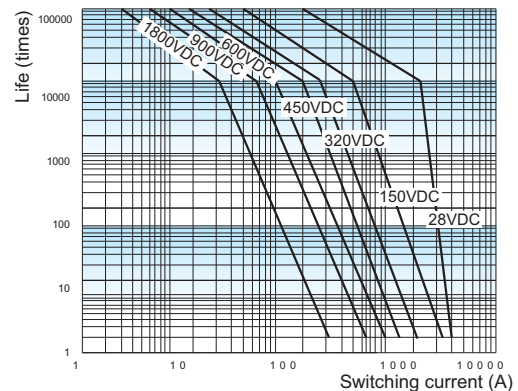
CHARACTERISTIC CURVES

Current carrying capacity



Notes: The above data are measured at room temperature for your reference only. Do not use it to select a fuse directly.

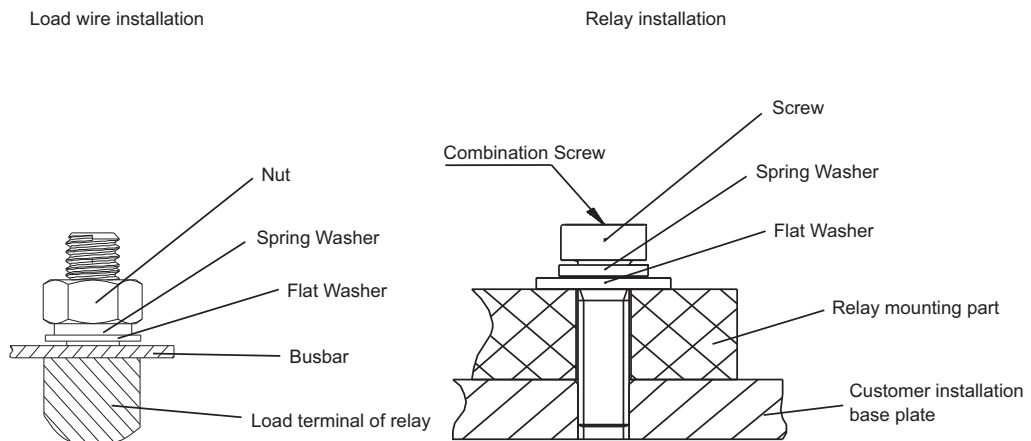
Load switching capability



Notes: Resistive load
Insulation after electrical life test $\geq 50M\Omega$ (500VDC)
As the lifetime is related to many factors, it is recommended to verify the ratings according to the actual application.

Precautions for use

1. In order to suppress the relay coil reverse electromotive force, it is recommended to connect bi-directional TVS diode or varistor with the coil in parallel (voltage is 1.5-2 times of rated voltage). If diode is used, the relay release time will be greatly prolonged, which may lead to the decline of cut-off performance.
Note: the energy-saving product has a coil suppression reverse electromotive force device.
2. The rated values of contact parameters are tested under resistive load. In the case of inductive load with $L/R > 1\text{ms}$, please connect inrush current protection devices for this load. If no measures are taken, electrical durability may decrease and on-off failure may occur. Please leave enough space when design.
3. As a HVDC switching device, it may fail at high temperature when the lifetime and load capacity exceed parameters specified in the manual. The protective circuit which can cut off the load in case of emergency shall be adopted. As a product with limited life, it should be replaced in time to ensure safety.
4. Please avoid grease and other foreign bodies on the terminal, and use connecting wires of 95mm^2 or above; When installing the load terminal, ensure that the power cable is close to the lead terminal. Install and tighten it in the sequence of flat washer, spring washer and nut, or directly use the self-locking nut. Contamination of the lead terminal or incorrect connection sequence can cause severe overheating and melting of the insulation of the connection cable.
5. Please use washers to prevent looseness during installation. Please control the locking torque within the recommended range. If it exceeds the range, it may cause damage to the shell. When using screws, make sure the gasket is thick and strong enough, otherwise it will deform and burst the casing.



Notes: Load external thread M8.

Disclaimer

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HFZ16V-250/E EPOXY SEALED NON-POLAR SERIES DC RELAYS

c RU US

File No.:20151202-E133481



File No.:2016010304860448



Features

- Rated 250A switching capability
- No polarity on the load and the coil
- The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment, coils and contacts do not oxidize and contaminate the environment.
- Main circuit and other applications
- Optional built-in energy-saving coil to keep the power low and suppress the reverse electromotive force

RoHS compliant

CONTACT DATA

Contact arrangement	1SH
Contact resistance	0.5mΩ max. (@250A)
Nominal current	250A
Rated load voltage	12~900VDC
Max. breaking current	2500A 320VDC (more than 1 time)
Max. switching power	800kW
Min. load of main contact	1A 12VDC
Min. load of auxiliary contact	8V 100mA
Standard continuous charged current	250A(120mm ²)
Short time overload current	400A 5min (120mm ²) 500A 3min (120mm ²) 600A 30s (120mm ²)
Mechanical endurance	2x10 ⁵ OPS
Electrical endurance	1 x 10 ⁴ OPS (250A 450VDC Resistive load, 23°C, 1s on 9s off)

CHARACTERISTICS

Insulation resistance	Between open contacts	1000MΩ (1000VDC)
	Between contact and coil	1000MΩ (1000VDC)
Dielectric strength	Between open contacts	2000Vrms
	Between coil & contacts	2000Vrms
Nominal voltage (VDC)		12/24
Operate time (ms)		≤30
Release time (ms)		≤10
Bounce time(ms)		≤5
Shock resistance		196 m/s ²
Vibration resistance		10Hz to 500Hz 49m/s ²
Ambient temperature		-40°C to 85°C
Humidity		5% to 95%RH
Protection grade		IP67
Termination		The M8 external thread
Outline dimensions		80.5 X 66 X 72.3
Weight		440g

Notes: 1) The above values are the initial values at room temperature.
2) The test result can not meet the requirements of voltage resistance and insulation resistance.

COIL DATA

Nominal voltage (VDC)	12/24
Operating voltage (VDC)	9~36
Max. voltage (VDC)	36
Pick-up voltage (VDC)	≤9
Drop-out voltage (VDC)	≥5
Coil resistance x (1±7%)	3.1
Min. starting current (A)	3
Transient surge current (A)	3.5(0.1s)
Average holding current (A)	Approx. 0.14
Steady-state power consumption (W)	Approx. 2

Notes: Other rated voltages can be specially ordered.



HONGFA RELAY

ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2021 Rev. 1.00

订货标记示例

Type	HFZ16	□	-250/ 900-	B-	SH-	S	A	L	4	□	E	P	-1	(XXX)
Application	Nil: New Energy Power Control V : Vehicle													
Version	250: 250A													
Nominal voltage	900: 12~900VDC													
Coil voltage	B: 9~36VDC													
Contact arrangement	SH: 1 FormA(double-contact of 1 FormA)													
Contact material	S: Silver plated													
Auxiliary Contact Form	Nil: Without auxiliary contact A: Normally open auxiliary contact B: Normally closed auxiliary contact C: Conversion auxiliary contact													
Coil terminal	L: Lead wire B: Lead wire with connector													
Load terminal	4: External thread mounting													
Installation method	Nil: Vertical													
Appearance and ttructure	E: Simplified shell structure													
Coil power consumption	P: energy-saving													
Sort	1: 1 coil													
Special code ¹⁾	XXX: Customer special requirement Nil: Standard													

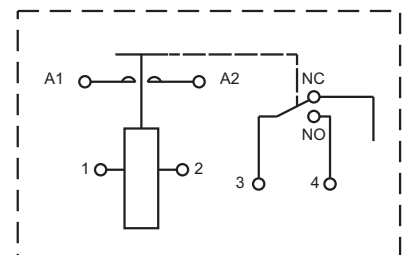
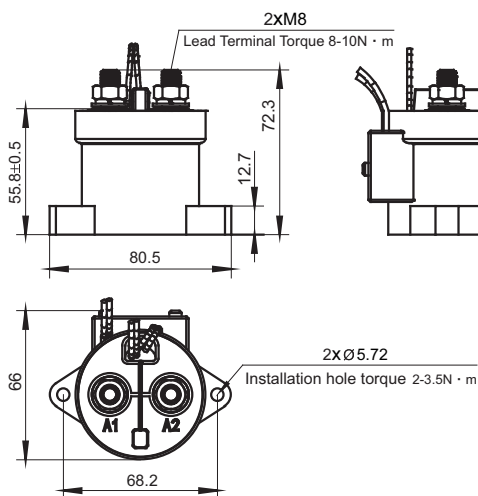
Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Outline Dimensions

PCB Layout (Bottom view)

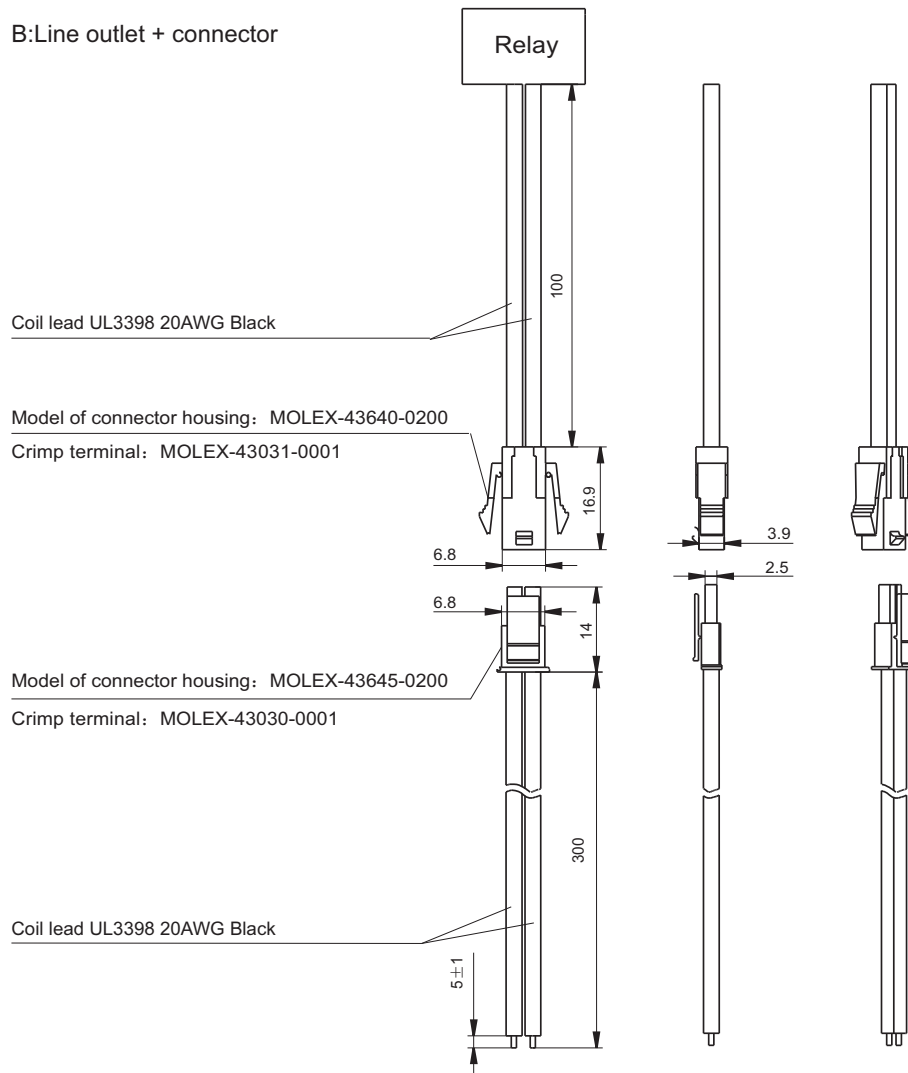


- Notes: 1) Dimension tolerance is not indicated for part of the overall dimension of the product. When the overall dimension is less than or equal to 10 mm, the tolerance is ± 0.3 mm; When the overall dimension is between (10 ~ 50) mm, the tolerance is ± 0.5 mm; When the overall dimension is greater than or equal to 50 mm, the tolerance is ± 0.8 mm.
- 2) L: Coil lead specifications: UL3321, 22AWG, black; Line length 300mm; Specifications of auxiliary contact lead wire: UL3398, 20AWG, Black; length 300 mm.
- 3) B: Line outlet + connector (See Figure).

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

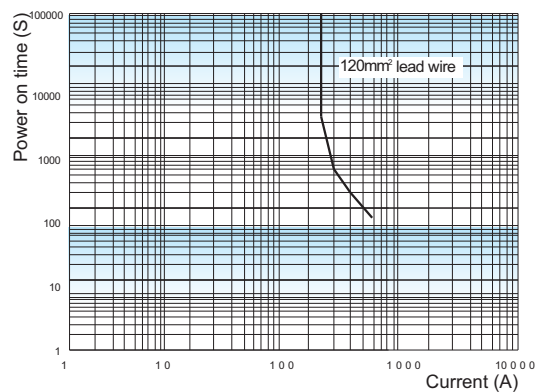
Unit: mm

B:Line outlet + connector



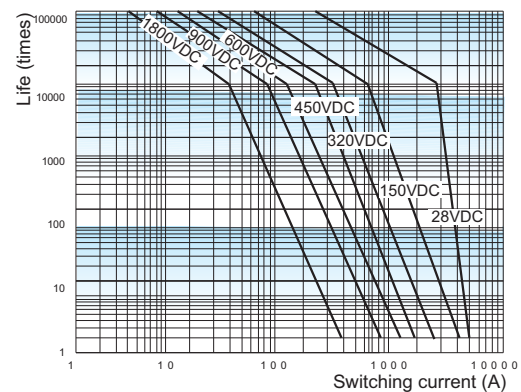
CHARACTERISTIC CURVES

Current carrying capacity



Notes: The above data are measured at room temperature for your reference only. Do not use it to select a fuse directly.

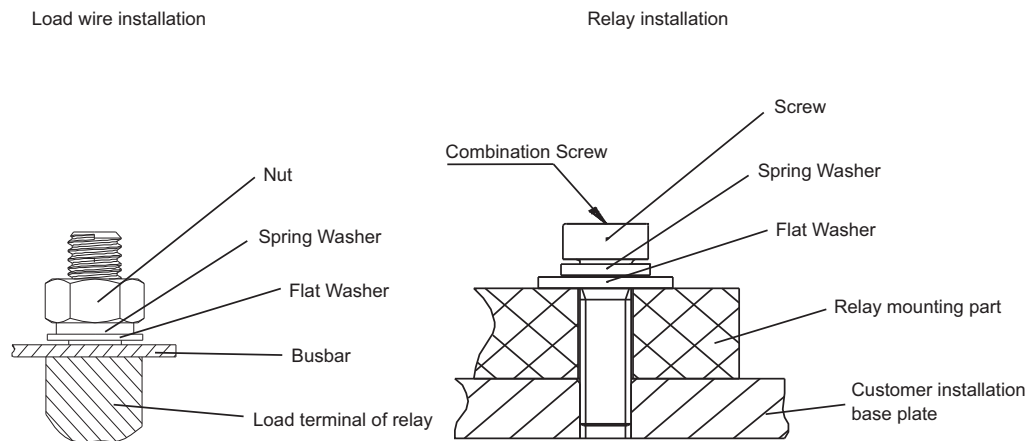
Load switching capability



Notes: Resistive load
Insulation after electrical life test $\geq 50\text{M}\Omega$ (500VDC)
As the lifetime is related to many factors, it is recommended to verify the ratings according to the actual application.

Precautions for use

1. In order to suppress the relay coil reverse electromotive force, it is recommended to connect bi-directional TVS diode or varistor with the coil in parallel (voltage is 1.5-2 times of rated voltage). If diode is used, the relay release time will be greatly prolonged, which may lead to the decline of cut-off performance.
Note: the energy-saving product has a coil suppression reverse electromotive force device.
2. The rated values of contact parameters are tested under resistive load. In the case of inductive load with $L/R > 1\text{ms}$, please connect inrush current protection devices for this load. If no measures are taken, electrical durability may decrease and on-off failure may occur. Please leave enough space when design.
3. As a HVDC switching device, it may fail at high temperature when the lifetime and load capacity exceed parameters specified in the manual. The protective circuit which can cut off the load in case of emergency shall be adopted. As a product with limited life, it should be replaced in time to ensure safety.
4. Please avoid grease and other foreign bodies on the terminal, and use connecting wires of 120mm² or above; When installing the load terminal, ensure that the power cable is close to the lead terminal. Install and tighten it in the sequence of flat washer, spring washer and nut, or directly use the self-locking nut. Contamination of the lead terminal or incorrect connection sequence can cause severe overheating and melting of the insulation of the connection cable.
5. Please use washers to prevent looseness during installation. Please control the locking torque within the recommended range. If it exceeds the range, it may cause damage to the shell. When using screws, make sure the gasket is thick and strong enough, otherwise it will deform and burst the casing.



Notes: Load external thread M8.

Disclaimer

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HFZ16V-50P

EPOXY SEALED POLARITY SERIES DC RELAY



Features

- Rated 50A switching capability
- Coil does not require polarity, contact load has polarity
- The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment, coils and contacts do not oxidize and contaminate the environment.
- Small size, light weight

RoHS compliant

CONTACT DATA

Contact arrangement	1SH
Contact resistance	30mΩ max.(Typ.0.5m)(6VDC,20A)
Nominal current	50A
Rated load voltage	12VDC to 900VDC
Max. Breaking Current	500A 320VDC (More than 1 time)
Max.switching power	160kW
Min. load of main contact	1A 12VDC
Standard continuous charged current	50A(16mm ²)
Short time overload current	75A 15min (16mm ²) 100A 3min (16mm ²) 150A 30s (16mm ²)
Mechanical endurance	1x10 ⁶ OPS
Electrical endurance	1 x 10 ⁴ OPS (50A 450VDC) 1 x 10 ³ OPS (50A 750VDC) Resistive load, 23°C, 1s on 9s off

CHARACTERISTICS

Insulation resistance	Between open contacts	1000MΩ (1000VDC)
	Between contact and coil	1000MΩ (1000VDC)
Dielectric strength	Between open contacts	2200Vrms
	Between coil & contacts	2200Vrms
Nominal Voltage (VDC)	12	24
Operate time (ms)	≤30	≤30
Release time (ms)	≤10	≤10
Bounce time(ms)	≤5	≤5
Shock resistance	196 m/s ²	
Vibration resistance	10Hz to 500Hz 98m/s ²	
Ambient temperature	-40°C to 85°C	
Humidity	5% to 95%RH	
Protection grade	IP67	
Termination	The M5 internal thread	
Outline Dimensions	54x40.3x60.3 53.3x41.1x60.1	
Weight	220g	

Notes: 1) The above values are the initial values at room temperature.
2) The test result can not meet the requirements of voltage resistance and insulation resistance.

COIL DATA

Nominal Voltage (VDC)	12	24
Operating Voltage (VDC)	9~16	18~32
Max. Voltage (VDC)	16	32
Pick-up Voltage (VDC)	≤9	≤18
Drop-out Voltage (VDC)	≥1	≥2
Coil Resistance x (1±7%)	26	96
Minimum Starting Current (A)	0.46	0.25
Transient Surge Current (A)	--	--
Average Holding Current (A)	0.46	0.25
Steady-state Power Consumption (W)	Approx. 5.5	Approx.6

Notes: Other rated voltages can be specially ordered.

AUXILIARY CONTACT PARAMETERS

Auxiliary contact form	1T/1D/1Z
Max. current	30VDC 2A;125VAC 3A
Min. current	8VDC 100mA
Contact resistance	<0.1Ω



HONGFA RELAY

ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2021 Rev. 1.00

ORDERING INFORMATION

Type	HFZ16	<input type="checkbox"/>	-50/	P/-	900-	12-	SH	S	A	L	5	Y	E	-1	(XXX)
Application	Nil: New Energy Power Control V : Vehicle														
Version	50: 50A														
Load polarity	P: polar														
Nominal voltage	900: 12~900VDC														
Coil voltage	12: 12VDC 24: 24VDC														
Contact arrangement	SH: 1 Form A(double-contact of 1 Form A)														
Contact material	S: Silver plated														
Auxiliary Contact Form	Nil: Without auxiliary contact A: Normally open auxiliary contact B: Normally closed auxiliary contact														
Coil terminal	L: Lead wire B: Lead wire with connector														
Load terminal	5: Internal thread mounting														
Installation method	Nil: Vertical Y: Horizontal														
Appearance and ttructure	E: Simplified shell structure														
Sort	1: 1 coil														
Special code ¹⁾	XXX: Customer special requirement Nil: Standard														

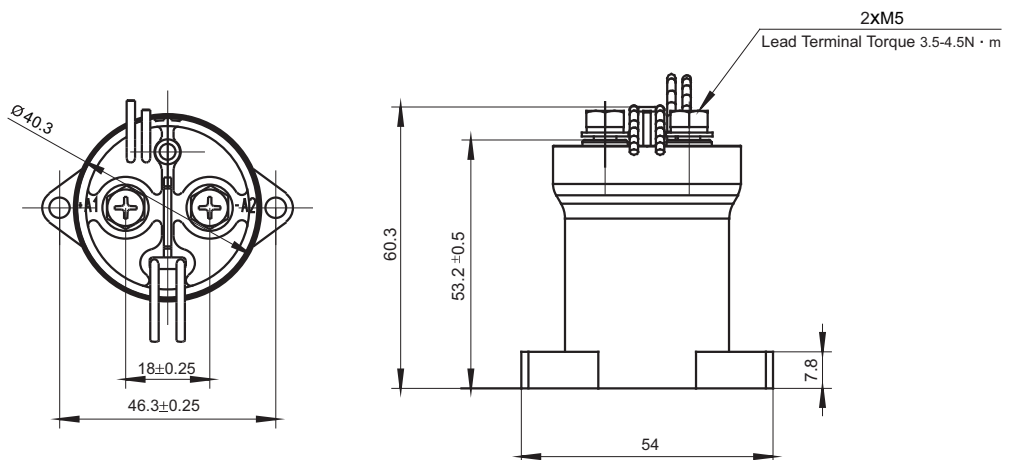
Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Outline Dimensions

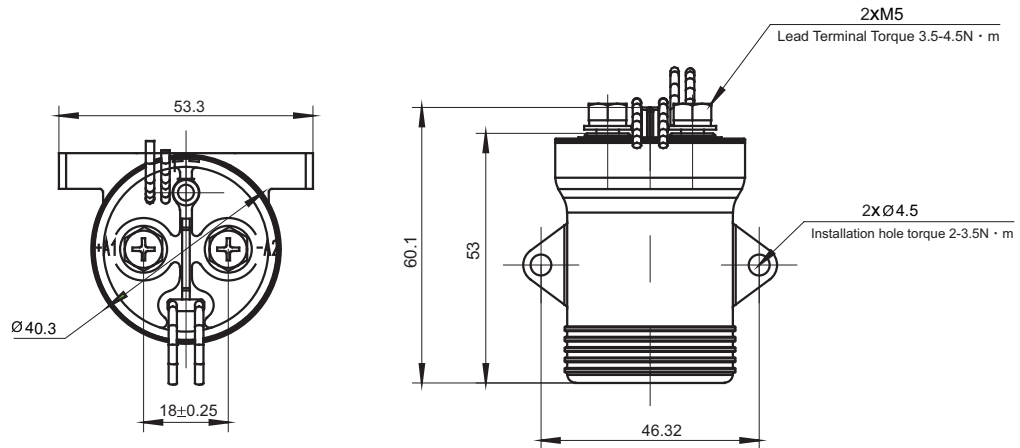
Vertical



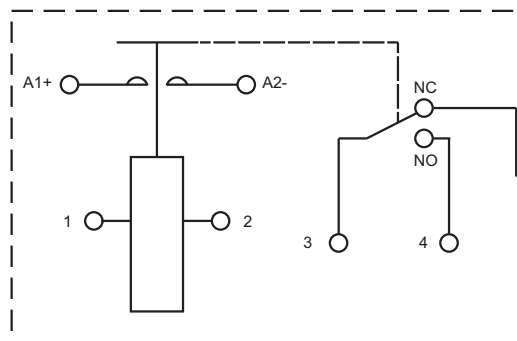
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Horizontal



PCB Layout (Bottom view)



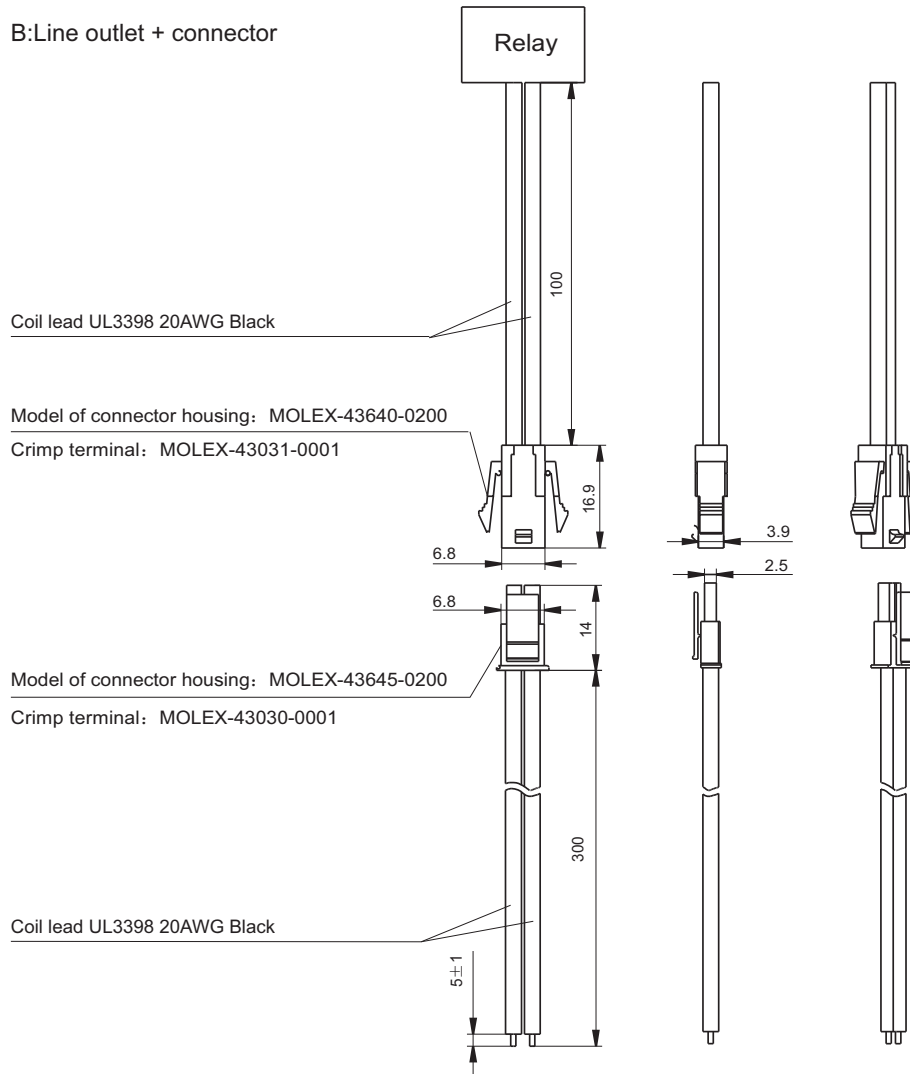
A1, A2 are the load terminals; 1 and 2 are the coil terminals; polarity on the load terminal and no polarity the coil terminal.

- Notes:**
- 1) Dimension tolerance is not indicated for part of the overall dimension of the product. When the overall dimension is less than or equal to 10 mm, the tolerance is ± 0.3 mm; When the overall dimension is between (10 ~ 50) mm, the tolerance is ± 0.5 mm; When the overall dimension is greater than or equal to 50 mm, the tolerance is ± 0.8 mm.
 - 2) L: Coil lead specifications: UL3398, 20AWG, black; Line length 300mm.
 - 3) B: Line outlet + connector (See Figure).

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

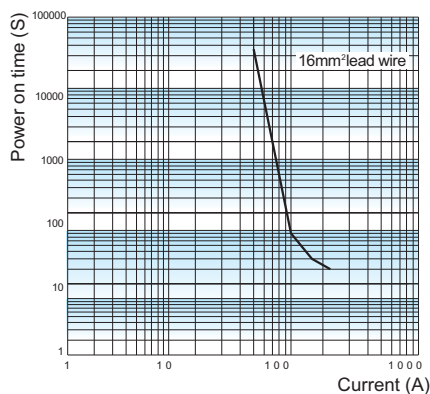
Unit: mm

B:Line outlet + connector



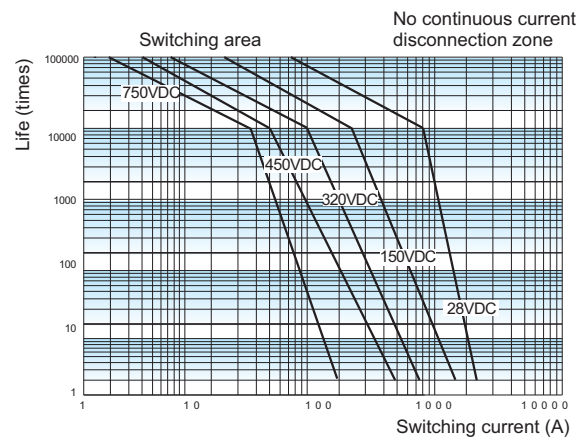
CHARACTERISTIC CURVES

Current carrying capacity



Notes: The above data are measured at room temperature for your reference only. Do not use it to select a fuse directly.

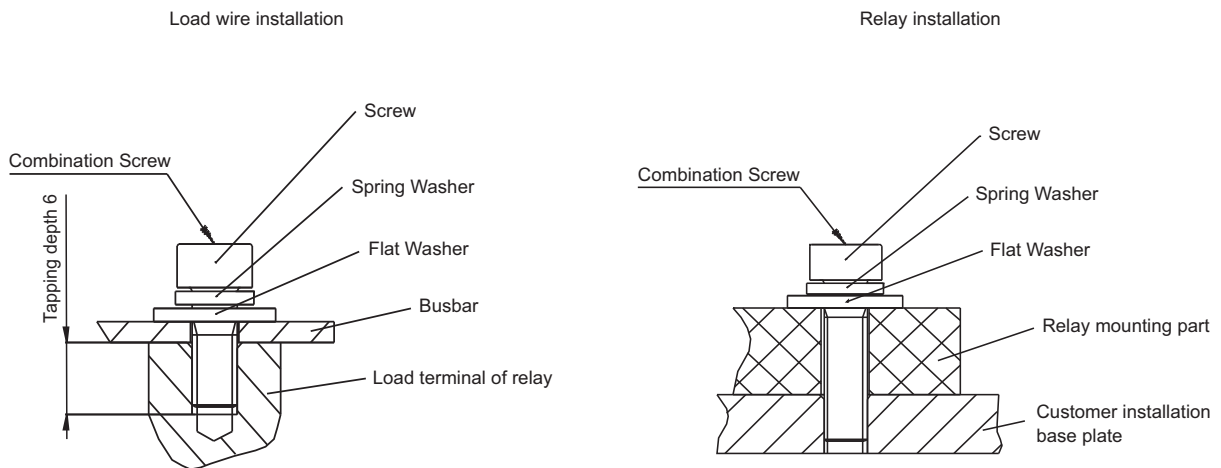
Load switching capability



Notes: Resistive load
Insulation after electrical life test $\geq 50\text{M}\Omega$ (500VDC)
As the lifetime is related to many factors, it is recommended to verify the ratings according to the actual application.

Precautions for use

1. In order to suppress the relay coil reverse electromotive force, suggest to connect the coil with nonlinear resistor parallelly (variable resistance is recommended to use, maximum energy tolerance $> 1 \text{ J}$, voltage in 1.5-2 times of the rated voltage, if use diode, the release time will greatly lengthen and degrade the cutting performance. (Energy-saving products have built-in suppression reverse electromotive force circuit, surge suppression devices are not required)
2. The rated values of contact parameters are tested under resistive load. In the case of inductive load with $L/R > 1 \text{ ms}$, please connect inrush pcurrent rotection devices for this load. If no measures are taken, electrical durability may decrease and on-off failure may occur. Please leave enough space when design.
3. As a HVDC switching device, it may fail at high temperature when the lifetime and load capacity exceed parameters specified in the manual. The protective circuit which can cut off the load in case of emergency shall be adopted. As a product with limited life, it should be replaced in time to ensure safety.
4. Please avoid grease and other foreign bodies on the terminal, and use connecting wires of 16 mm^2 or above; When installing the load terminal, ensure that the power cable is close to the lead terminal. Install and tighten it in the sequence of flat washer, spring washer and nut, or directly use the self-locking nut. Contamination of the lead terminal or incorrect connection sequence can cause severe overheating and melting of the insulation of the connection cable.
5. Please use washers to prevent looseness during installation. Please control the locking torque within the recommended range. If it exceeds the range, it may cause damage to the shell. When using screws, make sure the gasket is thick and strong enough, otherwise it will deform and burst the casing.



Notes: Tapping depth of load internal thread M5 is 7mm.

Disclaimer

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HFZ16V-100P

EPOXY SEALED POLARITY SERIES DC RELAY



Features

- Rated 100A switching capability
- Coil does not require polarity, contact load has polarity
- The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment, coils and contacts do not oxidize and contaminate the environment.
- Small size, light weight

RoHS compliant

CONTACT DATA

Contact arrangement	1SH
Contact resistance	30mΩ max.(typ.0.5m)(6VDC,20A)
Nominal current	100A
Rated load voltage	12~900VDC
Max. Breaking Current	1000A 320VDC (more than 1 time)
Max.switching power	320kW
Min. load of main contact	1A 12VDC
Standard continuous charged current	100A(35mm ²)
Short time overload current	150A 15min (35mm ²) 200A 3min (35mm ²) 300A 30s (35mm ²)
Mechanical endurance	1x10 ⁶ OPS
Electrical endurance	1 x 10 ⁴ OPS (100A 450VDC) 1 x 10 ³ OPS (100A 750VDC) Resistive load, 23°C, 1s on 9s off

CHARACTERISTICS

Insulation resistance	Between open contacts	1000MΩ (1000VDC)	
	Between contact and coil	1000MΩ (1000VDC)	
Dielectric strength	Between open contacts	2200Vrms	
	Between coil & contacts	2200Vrms	
Nominal Voltage (VDC)		12	24
Operate time (ms)		≤30	≤30
Release time (ms)		≤10	≤10
Bounce time(ms)		≤5	≤5
Shock resistance		196 m/s ²	
Vibration resistance		10Hz to 500Hz 98m/s ²	
Ambient temperature		-40°C to 85°C	
Humidity		5% to 95%RH	
Protection grade		IP67	
Termination		The M5 internal thread	
Outline Dimensions		54x40.3x60.3/5 3.3x41.1x60.1	
Weight		220g	

Notes: 1) The above values are the initial values at room temperature.
2) The test result can not meet the requirements of voltage resistance and insulation resistance.

COIL DATA

Nominal Voltage (VDC)	12	24
Operating Voltage (VDC)	9~16	18~32
Max. Voltage (VDC)	16	32
Pick-up Voltage (VDC)	≤9	≤18
Drop-out Voltage (VDC)	≥1	≥2
Coil Resistance x (1±7%)	26	96
Minimum Starting Current (A)	0.46	0.25
Transient Surge Current (A)	--	--
Average Holding Current (A)	0.46	0.25
Steady-state Power Consumption (W)	Approx. 5.5	Approx. 6

Notes: Other rated voltages can be specially ordered.

AUXILIARY CONTACT PARAMETERS

Auxiliary contact form	1T/1D/1Z
Max. current	30VDC 2A; 125VAC 3A
Min. current	8VDC 100mA
Contact resistance	<0.1Ω



HONGFA RELAY

ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2021 Rev. 1.00

ORDERING INFORMATION

Type	HFZ16	<input type="checkbox"/>	-100/	P/-	900-	12-	SH	S	A	L	5	Y	E	-1	(XXX)
Application	Nil: New Energy Power Control V : Vehicle														
Version	100: 100A														
Load polarity	P: polar														
Nominal voltage	900: 12~900VDC														
Coil voltage	12: 12VDC 24: 24VDC														
Contact arrangement	SH: 1 Form A(double-contact of 1 Form A)														
Contact material	S: Silver plated														
Auxiliary Contact Form	Nil: Without auxiliary contact A: Normally open auxiliary contact B: Normally closed auxiliary contact														
Coil terminal	L: Lead wire B: Lead wire with connector														
Load terminal	5: Internal thread mounting														
Installation method	Nil: Vertical Y: Horizontal														
Appearance and ttructure	E: Simplified shell structure														
Sort	1: 1 coil														
Special code ¹⁾	XXX: Customer special requirement Nil: Standard														

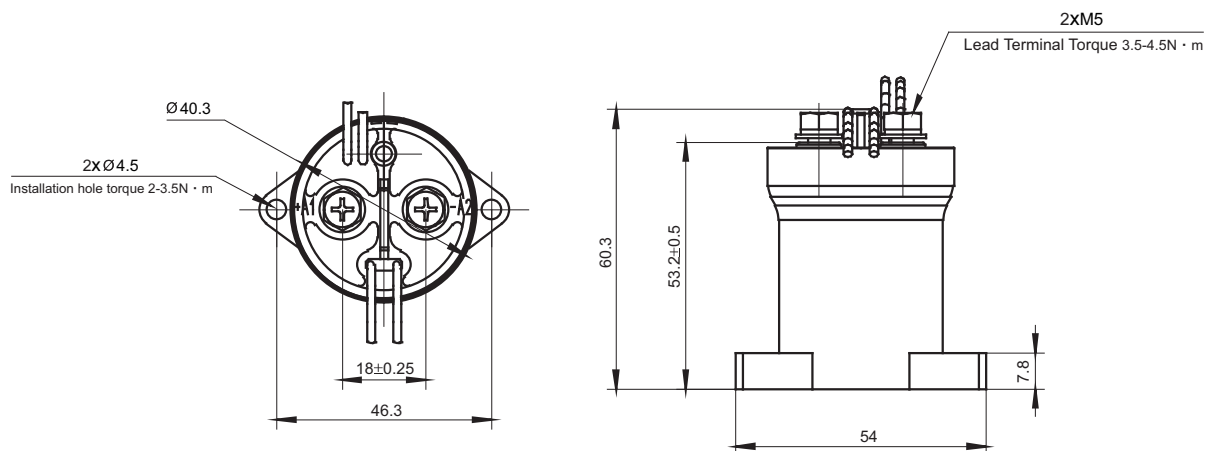
Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Outline Dimensions

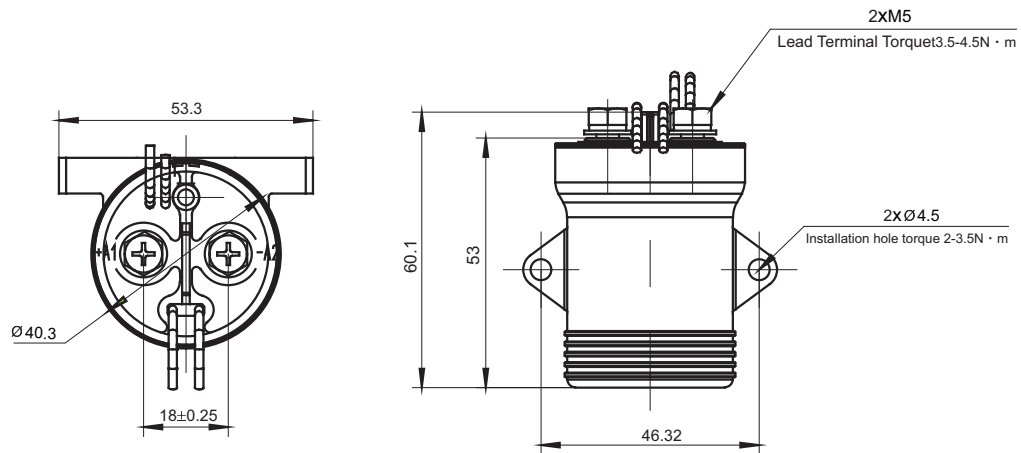
Vertical



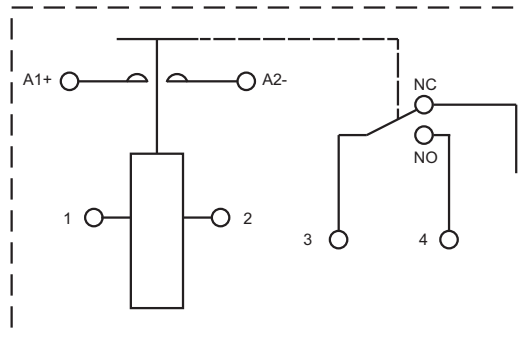
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Horizontal



PCB Layout (Bottom view)



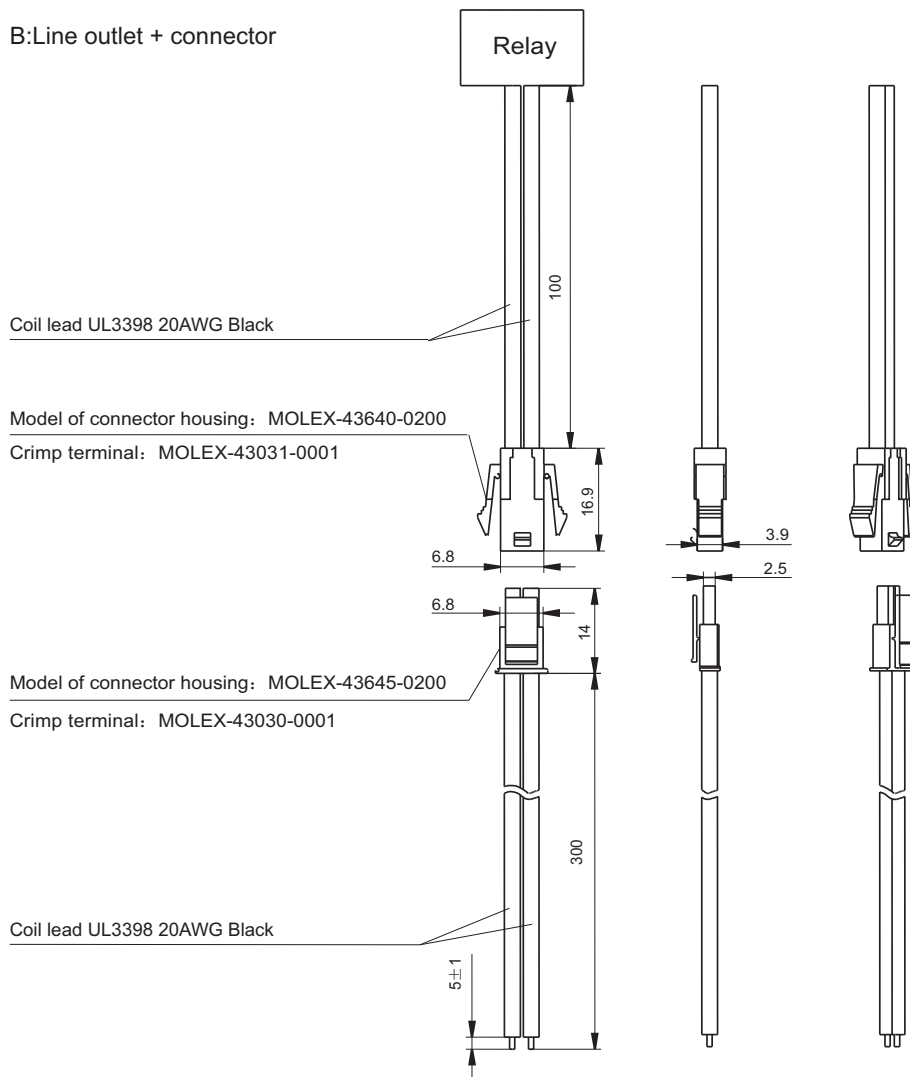
A1, A2 are the load terminals; 1 and 2 are the coil terminals; polarity on the load terminal and no polarity the coil terminal.

- Notes:**
- 1) Dimension tolerance is not indicated for part of the overall dimension of the product. When the overall dimension is less than or equal to 10 mm, the tolerance is ± 0.3 mm; When the overall dimension is between (10 ~ 50) mm, the tolerance is ± 0.5 mm; When the overall dimension is greater than or equal to 50 mm, the tolerance is ± 0.8 mm.
 - 2) L: Coil lead specifications: UL3398, 20AWG, black; Line length 300mm.
 - 3) B: Line outlet + connector (See Figure).

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

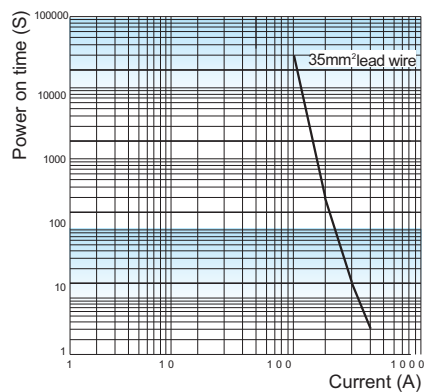
Unit: mm

B:Line outlet + connector



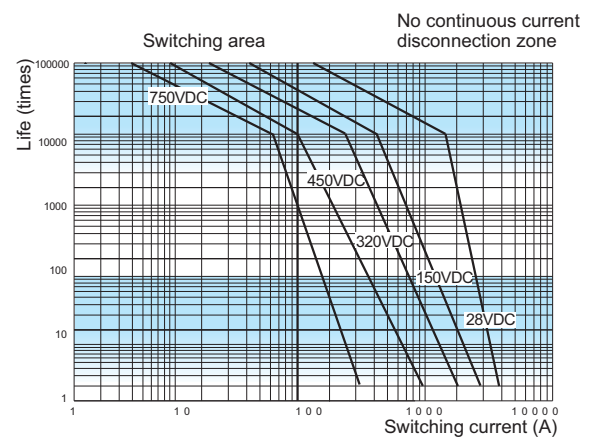
CHARACTERISTIC CURVES

Current carrying capacity



Notes: The above data are measured at room temperature for your reference only. Do not use it to select a fuse directly.

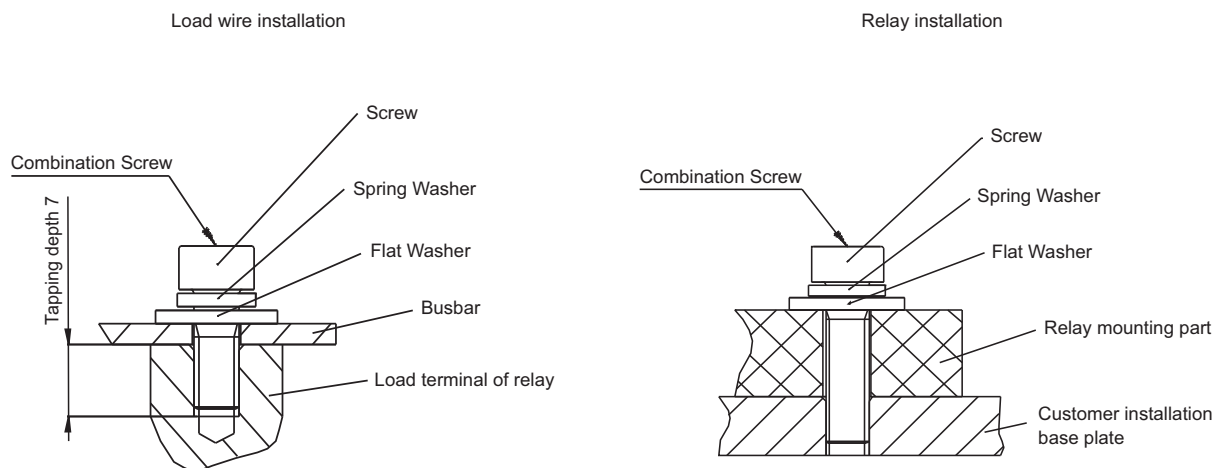
Load switching capability



Notes: Resistive load
Insulation after electrical life test $\geq 50\text{M}\Omega$ (500VDC)
As the lifetime is related to many factors, it is recommended to verify the ratings according to the actual application.

Precautions for use

1. In order to suppress the relay coil reverse electromotive force, suggest to connect the coil with nonlinear resistor parallelly (variable resistance is recommended to use, maximum energy tolerance $> 1 \text{ J}$, voltage in 1.5-2 times of the rated voltage, if use diode, the release time will greatly lengthen and degrade the cutting performance. (Energy-saving products have built-in suppression reverse electromotive force circuit, surge suppression devices are not required)
2. The rated values of contact parameters are tested under resistive load. In the case of inductive load with $L/R > 1 \text{ ms}$, please connect inrush current protection devices for this load. If no measures are taken, electrical durability may decrease and on-off failure may occur. Please leave enough space when design.
3. As a HVDC switching device, it may fail at high temperature when the lifetime and load capacity exceed parameters specified in the manual. The protective circuit which can cut off the load in case of emergency shall be adopted. As a product with limited life, it should be replaced in time to ensure safety.
4. Please avoid grease and other foreign bodies on the terminal, and use connecting wires of 16 mm^2 or above; When installing the load terminal, ensure that the power cable is close to the lead terminal. Install and tighten it in the sequence of flat washer, spring washer and nut, or directly use the self-locking nut. Contamination of the lead terminal or incorrect connection sequence can cause severe overheating and melting of the insulation of the connection cable.
5. Please use washers to prevent looseness during installation. Please control the locking torque within the recommended range. If it exceeds the range, it may cause damage to the shell. When using screws, make sure the gasket is thick and strong enough, otherwise it will deform and burst the casing.



Notes: Tapping depth of load internal thread M5 is 7mm.

Disclaimer

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HFZ16V-150P/900-E

EPOXY SEALED POLARITY SERIES DC RELAY



Features

- Rated 150A switching capability
- No polarity on the load and the coil
- The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment, coils and contacts do not oxidize and contaminate the environment.
- Main circuit and other applications
- Optional built-in energy-saving coil to keep the power low and suppress the reverse electromotive force

RoHS compliant

CONTACT DATA

Contact arrangement	1SH
Contact resistance	0.5mΩ max.(@150A)
Nominal current	150A
Rated load voltage	12VDC to 900VDC
Max. breaking current	1500A 320VDC(more than 1 time)
Max.switching power	480kW
Min. load of main contact	1A 12VDC
Min. load of auxiliary contact	8V 100mA
Standard continuous charged current	150A(50mm ²)
Short time overload current	250A 5min (50mm ²) 300A 3min (50mm ²) 400A 30s (50mm ²)
Mechanical endurance	2x10 ⁵ OPS
Electrical endurance	1 x 10 ⁴ OPS (150A 450VDC) 1 x 10 ³ OPS (150A 750VDC) Resistive load, 23°C, 1s on 9s off

COIL DATA

Nominal voltage (VDC)	12/24
Operating voltage (VDC)	9~36
Max. voltage (VDC)	36
Pick-up voltage (VDC)	≤9
Drop-out voltage (VDC)	≥5
Coil resistance x (1±7%)	3.1
Min. starting current (A)	3
Transient surge current (A)	3.5(0.1s)
Average holding current (A)	Approx. 0.14
Steady-state power consumption (W)	Approx. 2

Notes: Other rated voltages can be specially ordered.

CHARACTERISTICS

Insulation resistance	Between open contacts	1000MΩ (1000VDC)
	Between contact and coil	1000MΩ (1000VDC)
Dielectric strength	Between open contacts	2000Vrms
	Between coil & contacts	2000Vrms
Nominal voltage (VDC)		12/24
Operate time (ms)		≤30
Release time (ms)		≤10
Bounce time(ms)		≤5
Shock resistance		196 m/s ²
Vibration resistance		10Hz to 500Hz 49m/s ²
Ambient temperature		-40°C to 85°C
Humidity		5% to 95%RH
Protection grade		IP67
Termination		The M8 external thread
Outline dimensions		80.5 X 66 X 72.3
Weight		440g

Notes: 1) The above values are the initial values at room temperature.
2) The test result can not meet the requirements of voltage resistance and insulation resistance.



HONGFA RELAY

ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2021 Rev. 1.00

ORDERING INFORMATION

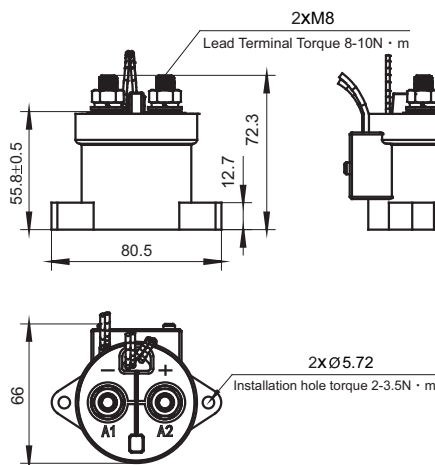
Type	HFZ16	<input type="checkbox"/>	-150/	P/	900-	B-	SH	S	A	L	4	E	P	-1	(XXX)
Application	Nil: New Energy Power Control V : Vehicle														
Version	150: 150A														
Load polarity	Nil: No polarity P: polar														
Nominal voltage	900: 12~900VDC														
Coil voltage	B: 9~36VDC														
Contact arrangement	SH: 1 Form A(double-contact of 1 Form A)														
Contact material	S: Silver plated														
Auxiliary Contact Form	Nil: Without auxiliary contact A: Normally open auxiliary contact B: Normally closed auxiliary contact C: Conversion auxiliary contact														
Coil terminal	L: Lead wire B: Lead wire with connector														
Installation method	4: External thread mounting														
Appearance and ttructure	E: Simplified shell structure														
Coil power consumption	Nil: Standard P: Energy-saving														
Sort	1: 1 coil														
Special code ¹⁾	XXX: Customer special requirement										Nil: Standard				

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

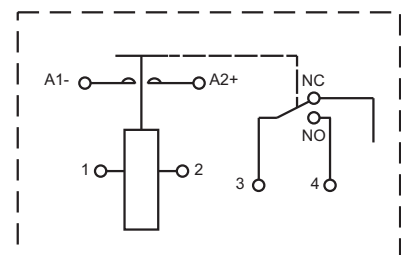
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Outline Dimensions



PCB Layout (Bottom view)

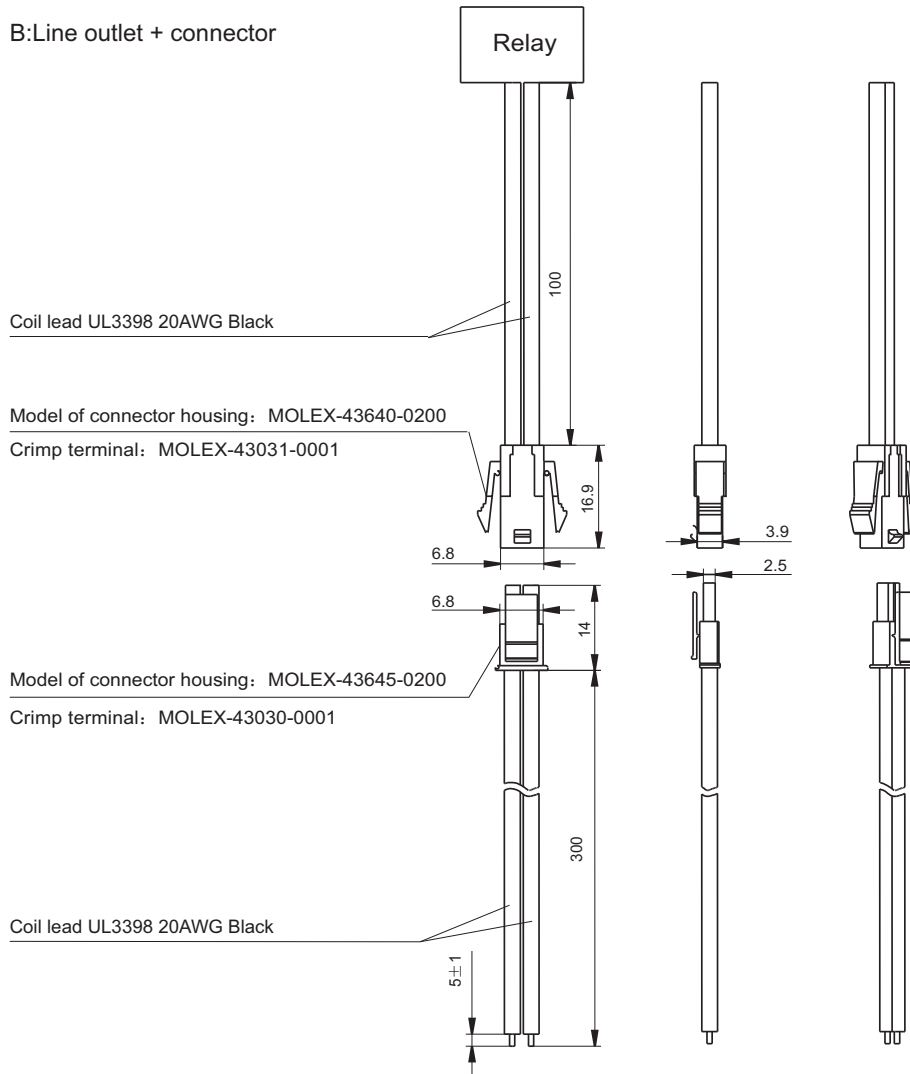


- Notes:
- 1) Dimension tolerance is not indicated for part of the overall dimension of the product. When the overall dimension is less than or equal to 10 mm, the tolerance is ± 0.3 mm; When the overall dimension is between (10 ~ 50) mm, the tolerance is ± 0.5 mm; When the overall dimension is greater than or equal to 50 mm, the tolerance is ± 0.8 mm.
 - 2) L: Coil lead specifications: UL3321, 22AWG, black; Line length 300mm; Specifications of auxiliary contact lead wire: UL3398, 20AWG, Black; length 300 mm.
 - 3) B: Line outlet + connector (See Figure).

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

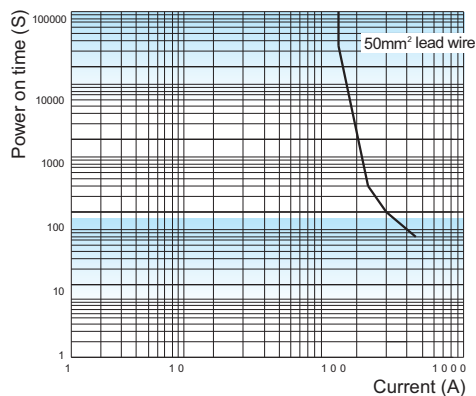
Unit: mm

B:Line outlet + connector



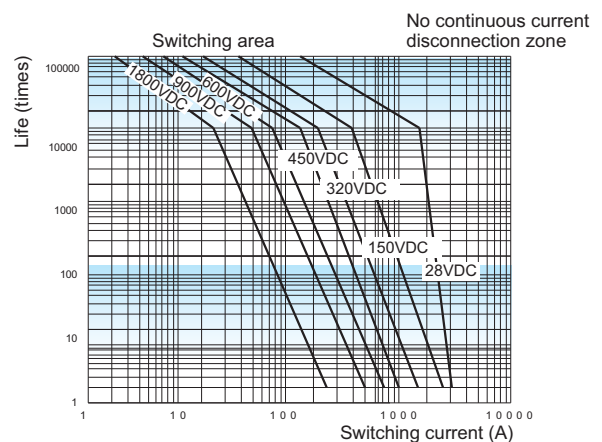
CHARACTERISTIC CURVES

Current carrying capacity



Notes: The above data are measured at room temperature for your reference only. Do not use it to select a fuse directly.

Load switching capability

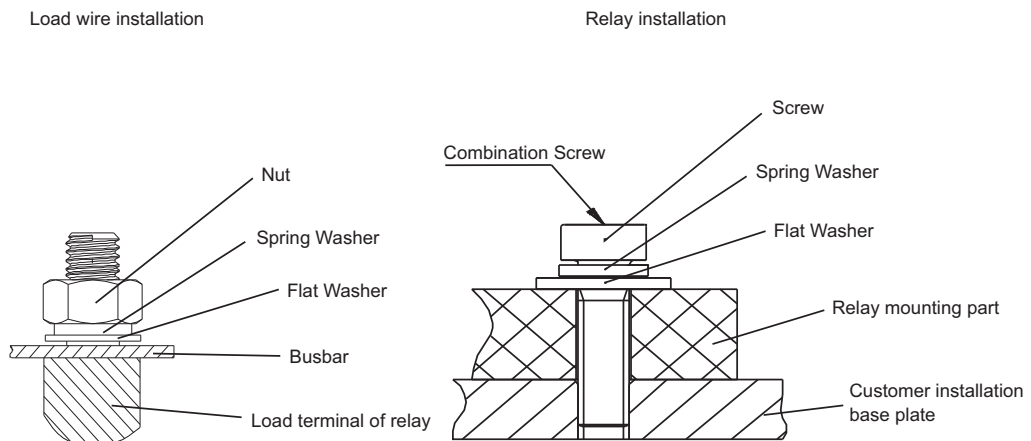


Notes: Resistive load
Insulation after electrical life test $\geq 50\text{M}\Omega$ (500VDC)
As the lifetime is related to many factors, it is recommended to verify the ratings according to the actual application.

Precautions for use

单位: mm

1. In order to suppress the relay coil reverse electromotive force, it is recommended to connect bi-directional TVS diode or varistor with the coil in parallel (voltage is 1.5-2 times of rated voltage). If diode is used, the relay release time will be greatly prolonged, which may lead to the decline of cut-off performance.
Note: the energy-saving product has a coil suppression reverse electromotive force device.
2. The rated values of contact parameters are tested under resistive load. In the case of inductive load with $L/R > 1\text{ms}$, please connect inrush current protection devices for this load. If no measures are taken, electrical durability may decrease and on-off failure may occur. Please leave enough space when design.
3. As a HVDC switching device, it may fail at high temperature when the lifetime and load capacity exceed parameters specified in the manual. The protective circuit which can cut off the load in case of emergency shall be adopted. As a product with limited life, it should be replaced in time to ensure safety.
4. Please avoid grease and other foreign bodies on the terminal, and use connecting wires of 50mm^2 or above; When installing the load terminal, ensure that the power cable is close to the lead terminal. Install and tighten it in the sequence of flat washer, spring washer and nut, or directly use the self-locking nut. Contamination of the lead terminal or incorrect connection sequence can cause severe overheating and melting of the insulation of the connection cable.
5. Please use washers to prevent looseness during installation. Please control the locking torque within the recommended range. If it exceeds the range, it may cause damage to the shell. When using screws, make sure the gasket is thick and strong enough, otherwise it will deform and burst the casing.



Notes: Load external thread M8.

Disclaimer

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HFZ16V-200P/900-E

EPOXY SEALED POLARITY SERIES DC RELAY



Features

- Rated 200A switching capability
- No polarity on the load and the coil
- The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment, coils and contacts do not oxidize and contaminate the environment.
- Main circuit and other applications
- Optional built-in energy-saving coil to keep the power low and suppress the reverse electromotive force

RoHS compliant

CONTACT DATA

Contact arrangement	1SH
Contact resistance	0.5mΩ max. (@200A)
Nominal current	200A
Rated load voltage	12~900VDC
Max. breaking current	2000A 320VDC(more than 1 time)
Max. switching power	640kW
Min. load of main contact	1A 12VDC
Min. load of auxiliary contact	8V 100mA
Standard continuous charged current	200A(95mm ²)
Short time overload current	320A 5min (95mm ²) 400A 3min (95mm ²) 500A 30s (95mm ²)
Mechanical endurance	2x10 ⁵ OPS
Electrical endurance	1 x 10 ⁴ OPS (200A 450VDC) 1 x 10 ³ OPS (200A 750VDC) Resistive load, 23°C, 1s on 9s off

COIL DATA

Nominal voltage (VDC)	12/24
Operating voltage (VDC)	9~36
Max. voltage (VDC)	36
Pick-up voltage (VDC)	≤9
Drop-out voltage (VDC)	≥5
Coil resistance x (1±7%)	3.1
Min. starting current (A)	3
Transient surge current (A)	3.5(0.1s)
Average holding current (A)	Approx. 0.14
Steady-state power consumption (W)	Approx. 2

Notes: Other rated voltages can be specially ordered.

CHARACTERISTICS

Insulation resistance	Between open contacts	1000MΩ (1000VDC)
	Between contact and coil	1000MΩ (1000VDC)
Dielectric strength	Between open contacts	2000Vrms
	Between coil & contacts	2000Vrms
Nominal voltage (VDC)		12/24
Operate time (ms)		≤30
Release time (ms)		≤10
Bounce time(ms)		≤5
Shock resistance		196 m/s ²
Vibration resistance		10Hz to 500Hz 49m/s ²
Ambient temperature		-40°C to 85°C
Humidity		5% to 95%RH
Protection grade		IP67
Termination		The M8 external thread
Outline dimensions		80.5 X 66 X 72.3
Weight		440g

Notes: 1) The above values are the initial values at room temperature.
2) The test result can not meet the requirements of voltage resistance and insulation resistance.



HONGFA RELAY

ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2021 Rev. 1.00

ORDERING INFORMATION

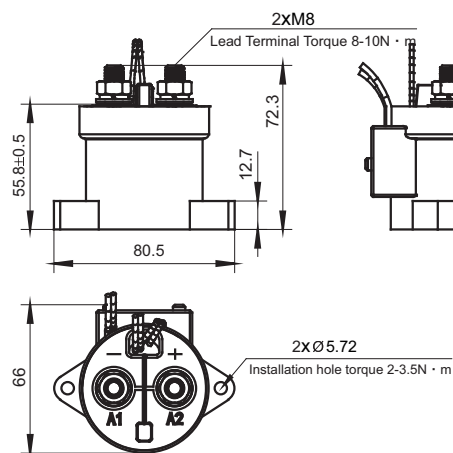
Type	HFZ16	□	-200	P/	900-	B-	SH	S	A	L	4	E	P	-1	(XXX)
Application	Nil: New Energy Power Control V : Vehicle														
Version	200: 200A														
Load polarity	Nil: No polarity P: polar														
Nominal voltage	900: 12~900VDC														
Coil voltage	B: 9~36VDC														
Contact arrangement	SH: 1 Form A(double-contact of 1 Form A)														
Contact material	S: Silver plated														
Auxiliary Contact Form	Nil: Without auxiliary contact A: Normally open auxiliary contact B: Normally closed auxiliary contact C: Conversion auxiliary contact														
Coil terminal	L: Lead wire B: Lead wire with connector														
Installation method	4: External thread mounting														
Appearance and ttructure	E: Simplified shell structure														
Coil power consumption	Nil: Standard P: Energy-saving														
Sort	1: 1 coil														
Special code ¹⁾	XXX: Customer special requirement										Nil: Standard				

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

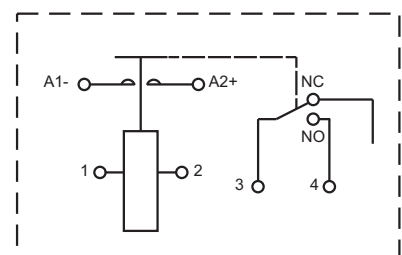
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Outline Dimensions



PCB Layout (Bottom view)

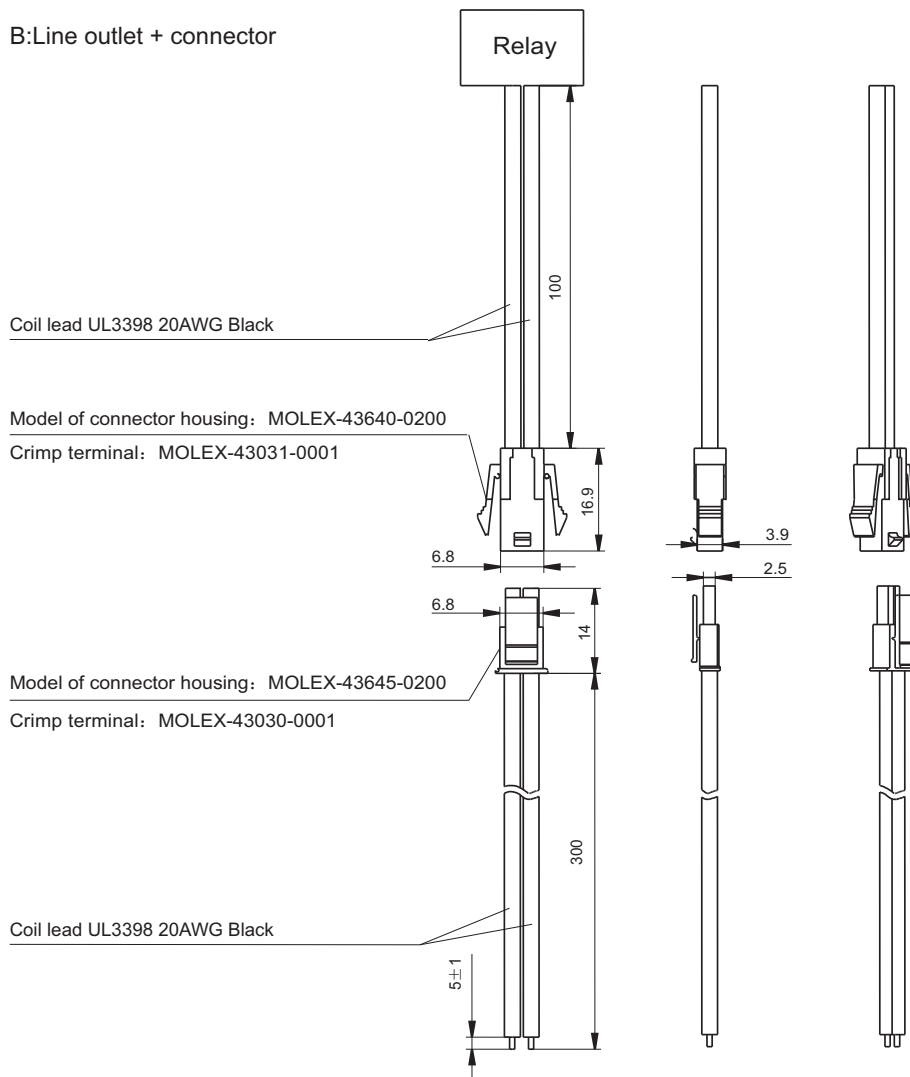


- Notes:
- 1) Dimension tolerance is not indicated for part of the overall dimension of the product. When the overall dimension is less than or equal to 10 mm, the tolerance is ± 0.3 mm; When the overall dimension is between (10 ~ 50) mm, the tolerance is ± 0.5 mm; When the overall dimension is greater than or equal to 50 mm, the tolerance is ± 0.8 mm.
 - 2) L: Coil lead specifications: UL3321, 22AWG, black; Line length 300mm; Specifications of auxiliary contact lead wire: UL3398, 20AWG, Black; length 300 mm.
 - 3) B: Line outlet + connector (See Figure).

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

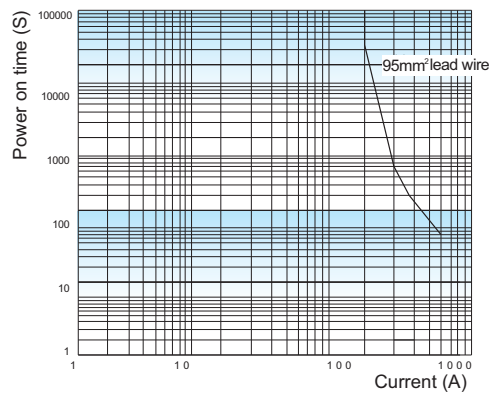
Unit: mm

B:Line outlet + connector



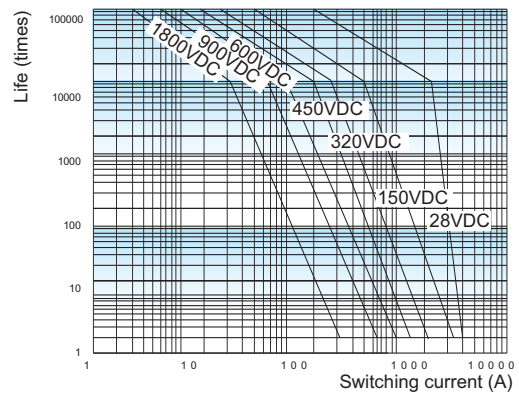
CHARACTERISTIC CURVES

Current carrying capacity



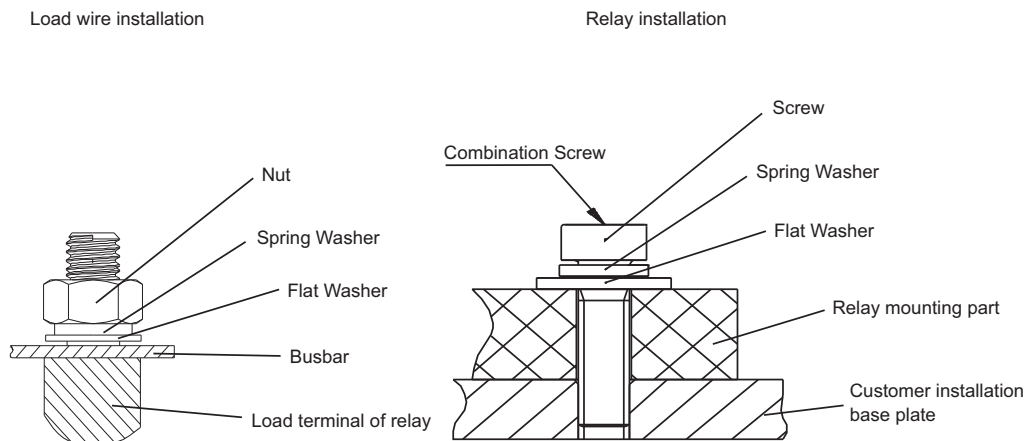
Notes: The above data are measured at room temperature for your reference only. Do not use it to select a fuse directly.

Load switching capability



Notes: Resistive load
Insulation after electrical life test $\geq 50\text{M}\Omega$ (500VDC)
As the lifetime is related to many factors, it is recommended to verify the ratings according to the actual application.

1. In order to suppress the relay coil reverse electromotive force, it is recommended to connect bi-directional TVS diode or varistor with the coil in parallel (voltage is 1.5-2 times of rated voltage). If diode is used, the relay release time will be greatly prolonged, which may lead to the decline of cut-off performance.
Note: the energy-saving product has a coil suppression reverse electromotive force device.
2. The rated values of contact parameters are tested under resistive load. In the case of inductive load with $L/R > 1\text{ms}$, please connect inrush pcurrent rotection devices for this load. If no measures are taken, electrical durability may decrease and on-off failure may occur. Please leave enough space when design.
3. As a HVDC switching device, it may fail at high temperature when the lifetime and load capacity exceed parameters specified in the manual. The protective circuit which can cut off the load in case of emergency shall be adopted. As a product with limited life, it should be replaced in time to ensure safety.
4. Please avoid grease and other foreign bodies on the terminal, and use connecting wires of 95mm^2 or above; When installing the load terminal, ensure that the power cable is close to the lead terminal. Install and tighten it in the sequence of flat washer, spring washer and nut, or directly use the self-locking nut. Contamination of the lead terminal or incorrect connection sequence can cause severe overheating and melting of the insulation of the connection cable.
5. Please use washers to prevent looseness during installation. Please control the locking torque within the recommended range. If it exceeds the range, it may cause damage to the shell. When using screws, make sure the gasket is thick and strong enough, otherwise it will deform and burst the casing.



Notes: Load external thread M8.

Disclaimer

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HFZ16V-250P/900-E

EPOXY SEALED POLARITY SERIES DC RELAY



Features

- Rated 250A switching capability
- No polarity on the load and the coil
- The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment, coils and contacts do not oxidize and contaminate the environment.
- Main circuit and other applications
- Optional built-in energy-saving coil to keep the power low and suppress the reverse electromotive force

RoHS compliant

CONTACT DATA

Contact arrangement	1SH
Contact resistance	0.5mΩ max. (@250A)
Nominal current	250A
Rated load voltage	12~900VDC
Max. breaking current	2500A 320VDC(more than 1 time)
Max. switching power	640kW
Min. load of main contact	1A 12VDC
Min. load of auxiliary contact	8V 100mA
Standard continuous charged current	250A(120mm ²)
Short time overload current	400A 5min (120mm ²) 500A 3min (120mm ²) 600A 30s (120mm ²)
Mechanical endurance	2x10 ⁵ OPS
Electrical endurance	1 x 10 ⁴ OPS (250A 450VDC) 1 x 10 ³ OPS (250A 750VDC) Resistive load, 23°C, 1s on 9s off

COIL DATA

Nominal voltage (VDC)	12/24
Operating voltage (VDC)	9~36
Max. voltage (VDC)	36
Pick-up voltage (VDC)	≤9
Drop-out voltage (VDC)	≥5
Coil resistance x (1±7%)	3.1
Min. starting current (A)	3
Transient surge current (A)	3.5(0.1s)
Average holding current (A)	Approx. 0.14
Steady-state power consumption (W)	Approx. 2

Notes: Other rated voltages can be specially ordered.

CHARACTERISTICS

Insulation resistance	Between open contacts	1000MΩ (1000VDC)
	Between contact and coil	1000MΩ (1000VDC)
Dielectric strength	Between open contacts	2000Vrms
	Between coil & contacts	2000Vrms
Nominal voltage (VDC)		12/24
Operate time (ms)		≤30
Release time (ms)		≤10
Bounce time(ms)		≤5
Shock resistance		196 m/s ²
Vibration resistance		10Hz to 500Hz 49m/s ²
Ambient temperature		-40°C to 85°C
Humidity		5% to 95%RH
Protection grade		IP67
Termination		The M8 external thread
Outline dimensions		80.5 X 66 X 72.3
Weight		440g

Notes: 1) The above values are the initial values at room temperature.
2) The test result can not meet the requirements of voltage resistance and insulation resistance.



HONGFA RELAY

ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2021 Rev. 1.00

ORDERING INFORMATION

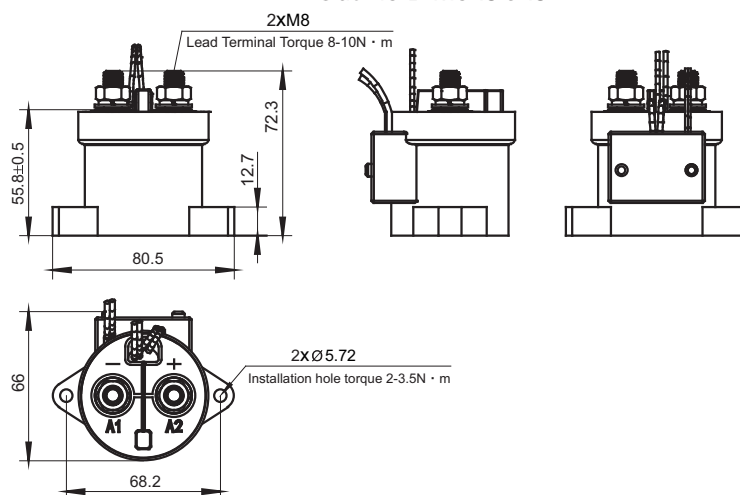
Type	HFZ16	<input type="checkbox"/>	-250	P/	900-	B-	SH	S	L	4	E	P	-1	(XXX)
Application	Nil: New Energy Power Control V : Vehicle													
Version	250: 250A													
Load polarity	Nil: No polarity P: polar													
Nominal voltage	900: 12~900VDC													
Coil voltage	B: 9~36VDC													
Contact arrangement	SH: 1 Form A(double-contact of 1 Form A)													
Contact material	S: Silver plated													
Auxiliary Contact Form	Nil: Without auxiliary contact A: Normally open auxiliary contact B: Normally closed auxiliary contact C: Conversion auxiliary contact													
Coil terminal	L: Lead wire B: Lead wire with connector													
Installation method	4: External thread mounting													
Appearance and ttructure	E: Simplified shell structure													
Coil power consumption	Nil: Standard P: Energy-saving													
Sort	1: 1 coil													
Special code ¹⁾	XXX: Customer special requirement Nil: Standard													

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

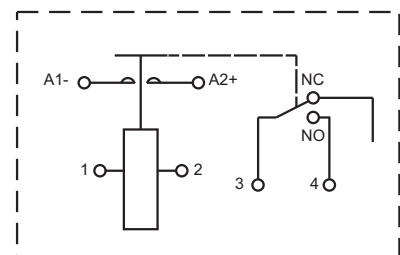
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Outline Dimensions



PCB Layout (Bottom view)

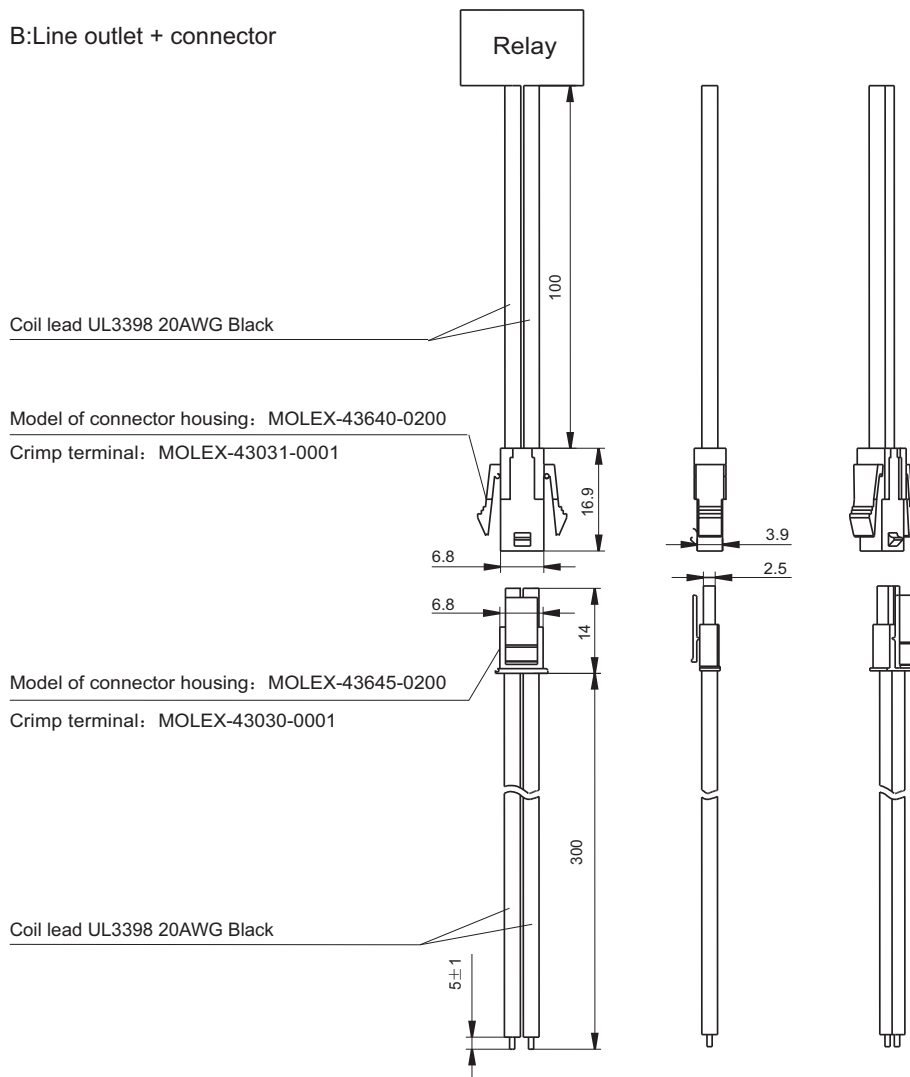


- Notes:
- 1) Dimension tolerance is not indicated for part of the overall dimension of the product. When the overall dimension is less than or equal to 10 mm, the tolerance is ± 0.3 mm; When the overall dimension is between (10 ~ 50) mm, the tolerance is ± 0.5 mm; When the overall dimension is greater than or equal to 50 mm, the tolerance is ± 0.8 mm.
 - 2) L: Coil lead specifications: UL3321, 22AWG, black; Line length 300mm; Specifications of auxiliary contact lead wire: UL3398, 20AWG, Black; length 300 mm.
 - 3) B: Line outlet + connector (See Figure).

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

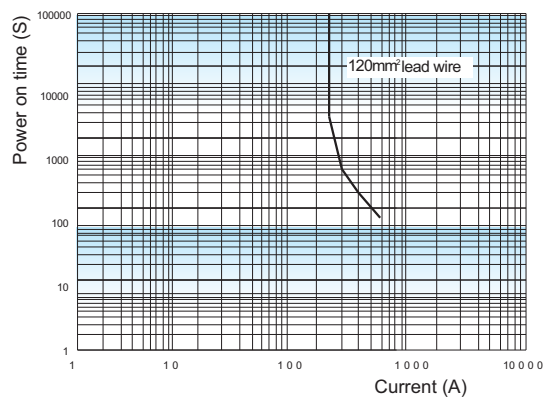
Unit: mm

B:Line outlet + connector



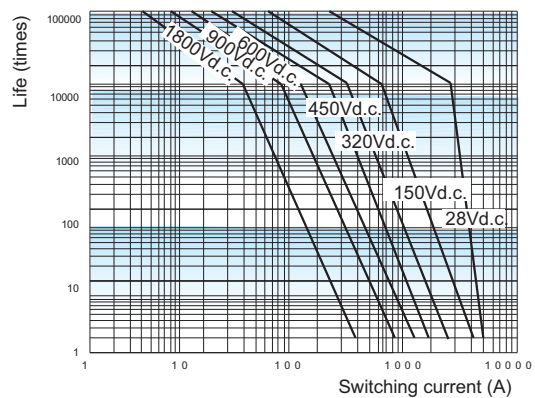
CHARACTERISTIC CURVES

Current carrying capacity



Notes: The above data are measured at room temperature for your reference only. Do not use it to select a fuse directly.

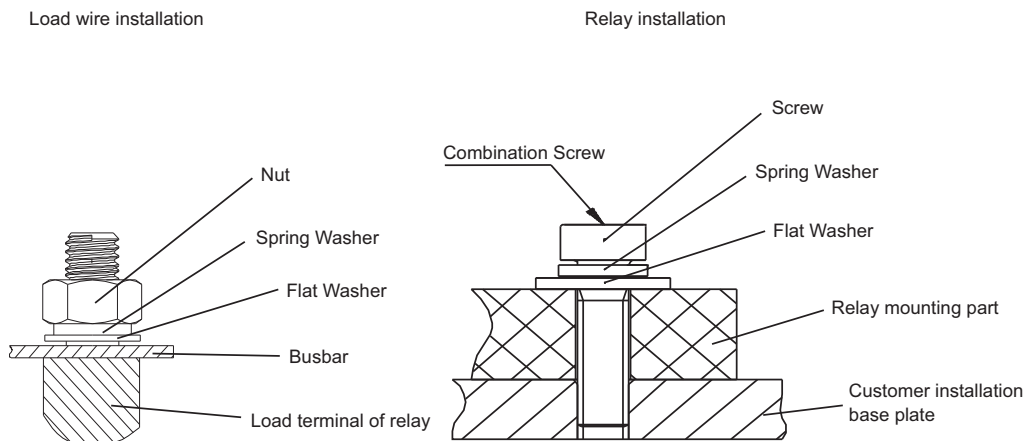
Load switching capability



Notes: Resistive load
Insulation after electrical life test $\geq 50\text{M}\Omega$ (500VDC)
As the lifetime is related to many factors, it is recommended to verify the ratings according to the actual application.

Precautions for use

1. In order to suppress the relay coil reverse electromotive force, it is recommended to connect bi-directional TVS diode or varistor with the coil in parallel (voltage is 1.5-2 times of rated voltage). If diode is used, the relay release time will be greatly prolonged, which may lead to the decline of cut-off performance.
Note: the energy-saving product has a coil suppression reverse electromotive force device.
2. The rated values of contact parameters are tested under resistive load. In the case of inductive load with $L/R > 1\text{ms}$, please connect inrush current protection devices for this load. If no measures are taken, electrical durability may decrease and on-off failure may occur. Please leave enough space when design.
3. As a HVDC switching device, it may fail at high temperature when the lifetime and load capacity exceed parameters specified in the manual. The protective circuit which can cut off the load in case of emergency shall be adopted. As a product with limited life, it should be replaced in time to ensure safety.
4. Please avoid grease and other foreign bodies on the terminal, and use connecting wires of 120mm^2 or above; When installing the load terminal, ensure that the power cable is close to the lead terminal. Install and tighten it in the sequence of flat washer, spring washer and nut, or directly use the self-locking nut. Contamination of the lead terminal or incorrect connection sequence can cause severe overheating and melting of the insulation of the connection cable.
5. Please use washers to prevent looseness during installation. Please control the locking torque within the recommended range. If it exceeds the range, it may cause damage to the shell. When using screws, make sure the gasket is thick and strong enough, otherwise it will deform and burst the casing.



Notes: Load external thread M8.

Disclaimer

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HFZ16V-300P

EPOXY SEALED POLARITY SERIES DC RELAY



Features

- Rated 300A switching capability
- No polarity on the load and the coil
- The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment, coils and contacts do not oxidize and contaminate the environment.
- Main circuit and other applications
- Optional built-in energy-saving coil to keep the power low and suppress the reverse electromotive force

RoHS compliant

CONTACT DATA

Contact arrangement	1SH
Contact resistance	0.5mΩ max. (@300A)
Nominal current	300A
Rated load voltage	12~900VDC
Max. breaking current	2500A 320VDC(more than 1 time)
Max. switching power	640kW
Min. load of main contact	1A 12VDC
Min. load of auxiliary contact	8V 100mA
Standard continuous charged current	300A(185mm ²)
Short time overload current	400A 20min (185mm ²) 600A 3min (185mm ²)
Mechanical endurance	2x10 ⁵ OPS
Electrical endurance	3 x 10 ³ OPS (300A 450VDC) 1 x 10 ³ OPS (300A 750VDC) Resistive load, 23°C, 1s on 9s off

CHARACTERISTICS

Insulation resistance	Between open contacts	1000MΩ (1000VDC)
	Between contact and coil	1000MΩ (1000VDC)
Dielectric strength	Between open contacts	2000Vrms
	Between coil & contacts	2000Vrms
Nominal voltage (VDC)		12/24
Operate time (ms)		≤50
Release time (ms)		≤10
Bounce time(ms)		≤5
Shock resistance		196 m/s ²
Vibration resistance		10Hz to 500Hz 49m/s ²
Ambient temperature		-40°C to 85°C
Humidity		5% to 95%RH
Protection grade		IP67
Termination		The M10 external thread
Outline dimensions		100 X 80 X 64.2
Weight		640g

Notes: 1) The above values are the initial values at room temperature.
2) The test result can not meet the requirements of voltage resistance and insulation resistance.

COIL DATA

Nominal voltage (VDC)	12/24
Operating voltage (VDC)	9~36
Max. voltage (VDC)	36
Pick-up voltage (VDC)	≤9
Drop-out voltage (VDC)	≥5
Coil resistance x (1±7%)	3.1
Min. starting current (A)	3
Transient surge current (A)	3.5(0.1s)
Average holding current (A)	Approx. 0.14
Steady-state power consumption (W)	Approx. 2

Notes: Other rated voltages can be specially ordered.



HONGFA RELAY

ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2021 Rev. 1.00

ORDERING INFORMATION

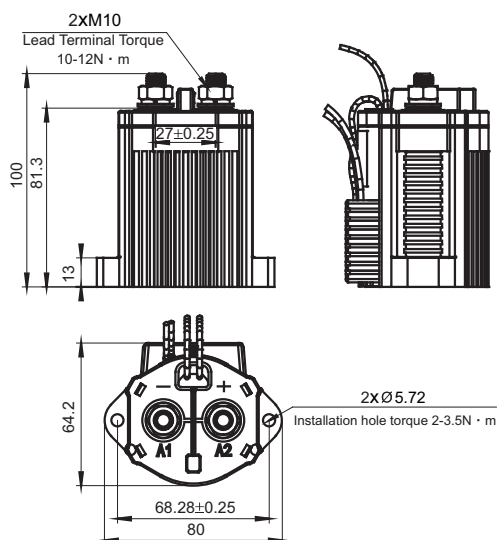
Type	HFZ16		-300	P/	900-	B-	SH	S	A	L	4	P	-1	(XXX)
Application	Nil: New Energy Power Control V : Vehicle													
Version	300: 300A													
Load polarity	Nil: No polarity P: polar													
Nominal voltage	900: 12~900VDC													
Coil voltage	B: 9~36VDC													
Contact arrangement	SH: 1 Form A(double-contact of 1 Form A)													
Contact material	S: Silver plated													
Auxiliary Contact Form	Nil: Without auxiliary contact A: Normally open auxiliary contact B: Normally closed auxiliary contact													
Coil terminal	L: Lead wire B: Lead wire with connector													
Installation method	4: External thread mounting													
Coil power consumption	Nil: Standard P: Energy-saving													
Sort	1: 1 coil													
Special code ¹⁾	XXX: Customer special requirement Nil: Standard													

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

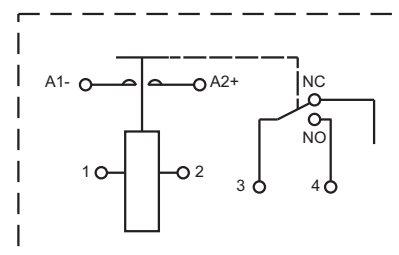
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Outline Dimensions



PCB Layout (Bottom view)

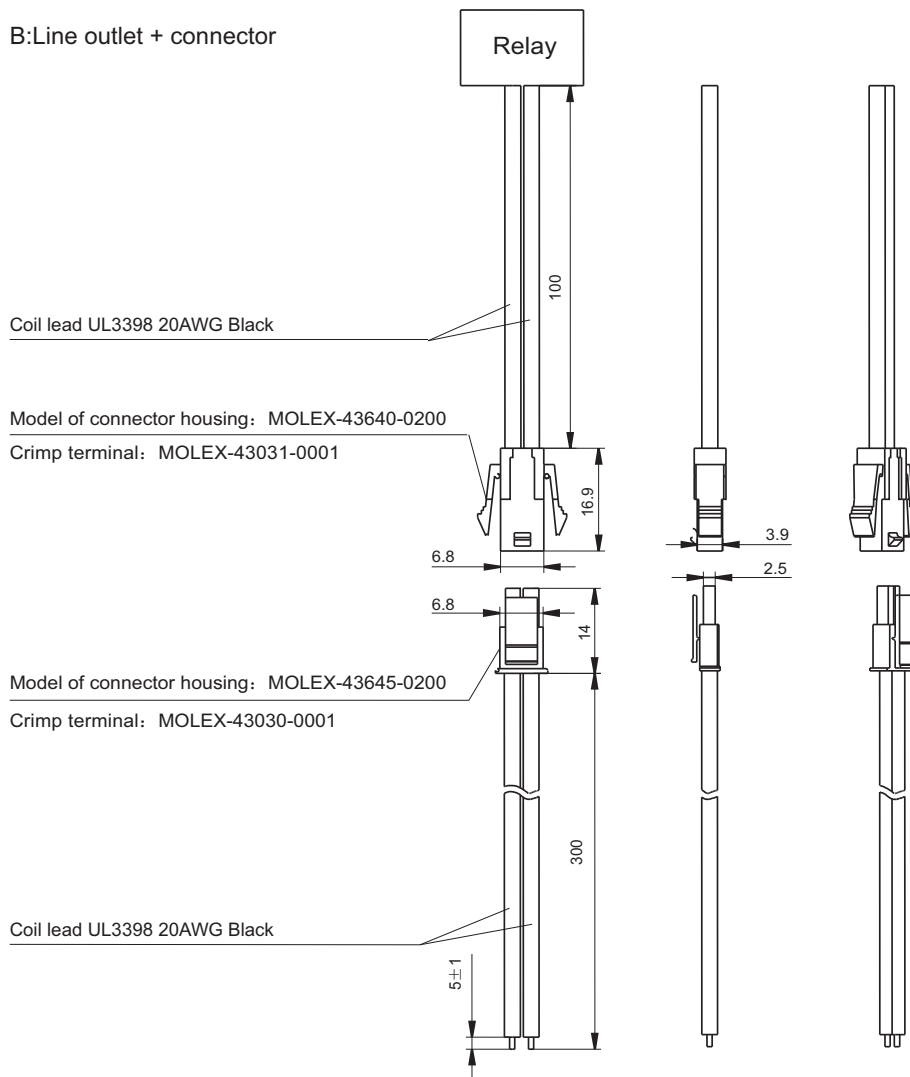


- Notes: 1) Dimension tolerance is not indicated for part of the overall dimension of the product. When the overall dimension is less than or equal to 10 mm, the tolerance is ± 0.3 mm; When the overall dimension is between (10 ~ 50) mm, the tolerance is ± 0.5 mm; When the overall dimension is greater than or equal to 50 mm, the tolerance is ± 0.8 mm.
- 2) L: Coil lead specifications: UL3321, 22AWG, black; Line length 300mm; Specifications of auxiliary contact lead wire: UL3398, 20AWG, Black; length 300 mm.
- 3) B: Line outlet + connector (See Figure).

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

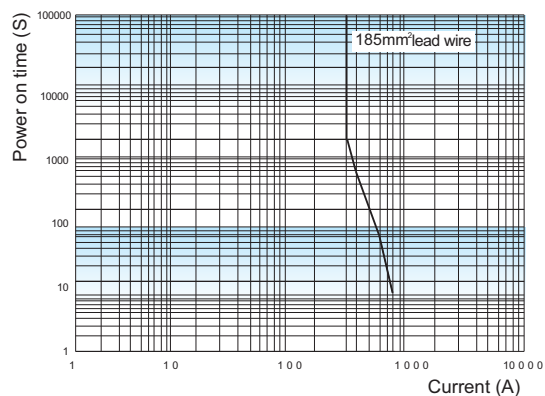
Unit: mm

B:Line outlet + connector



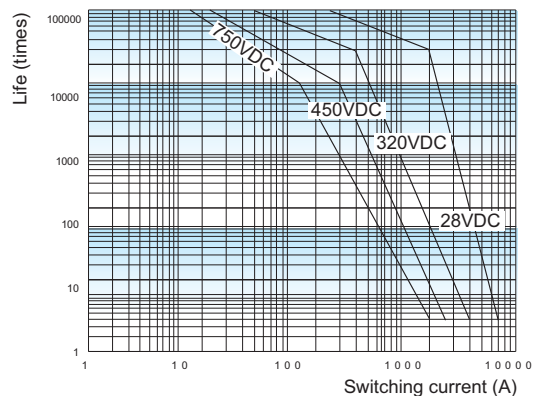
CHARACTERISTIC CURVES

Current carrying capacity



Notes: The above data are measured at room temperature for your reference only. Do not use it to select a fuse directly.

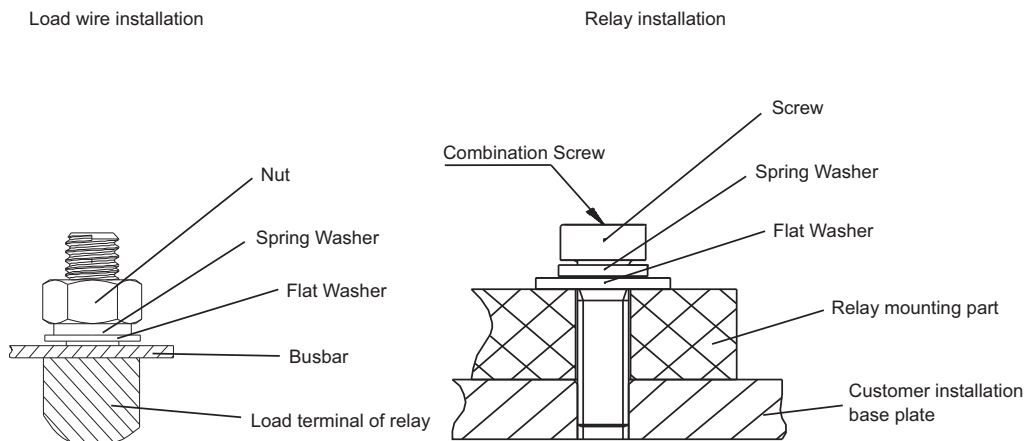
Load switching capability



Notes: Resistive load
Insulation after electrical life test $\geq 50\text{M}\Omega$ (500VDC)
As the lifetime is related to many factors, it is recommended to verify the ratings according to the actual application.

Precautions for use

1. In order to suppress the relay coil reverse electromotive force, it is recommended to connect bi-directional TVS diode or varistor with the coil in parallel (voltage is 1.5-2 times of rated voltage). If diode is used, the relay release time will be greatly prolonged, which may lead to the decline of cut-off performance.
Note: the energy-saving product has a coil suppression reverse electromotive force device.
2. The rated values of contact parameters are tested under resistive load. In the case of inductive load with $L/R > 1\text{ms}$, please connect inrush current protection devices for this load. If no measures are taken, electrical durability may decrease and on-off failure may occur. Please leave enough space when design.
3. As a HVDC switching device, it may fail at high temperature when the lifetime and load capacity exceed parameters specified in the manual. The protective circuit which can cut off the load in case of emergency shall be adopted. As a product with limited life, it should be replaced in time to ensure safety.
4. Please avoid grease and other foreign bodies on the terminal, and use connecting wires of 185mm^2 or above; When installing the load terminal, ensure that the power cable is close to the lead terminal. Install and tighten it in the sequence of flat washer, spring washer and nut, or directly use the self-locking nut. Contamination of the lead terminal or incorrect connection sequence can cause severe overheating and melting of the insulation of the connection cable.
5. Please use washers to prevent looseness during installation. Please control the locking torque within the recommended range. If it exceeds the range, it may cause damage to the shell. When using screws, make sure the gasket is thick and strong enough, otherwise it will deform and burst the casing.



Notes: Load external thread M10.

Disclaimer

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HFZ17V-50

EPOXY SEALED NON-POLAR SERIES DC RELAYS



Features

- Rated 50A switching capability
- No polarity on the load and the coil
- The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment, coils and contacts do not oxidize and contaminate the environment.
- Pre-charging and other applications
- Small size, light weight

RoHS compliant

CONTACT DATA

Contact arrangement	1SH
Contact resistance	3mΩ max. (@ 10A)
Nominal current	50A
Rated load voltage	12~900VDC
Max. breaking current	500A 320VDC (more than 1 time)
Max. switching power	160kW
Min. load	1A 12VDC
Standard continuous charged current	50A(16mm ²)
Short time overload current	70A 8min (16mm ²) 100A 80s (16mm ²) 120A 40s (16mm ²)
Mechanical endurance	2x10 ⁵ OPS
Electrical endurance	1 x 10 ⁴ OPS (50A 450VDC, Resistive load, 23°C, 1s on 9s off)

COIL DATA

Nominal voltage (VDC)	12	24
Operating voltage (VDC)	9~16	18~32
Max. voltage (VDC)	16	32
Pick-up voltage (VDC)	≤9	≤18
Drop-out voltage (VDC)	≥1	≥2
Coil resistance x (1±7%)	40	152
Min. starting current (A)	--	--
Transient surge current (A)	--	--
Average holding current (A)	0.3	0.158
Steady-state power consumption (W)	Approx. 3.6	Approx. 3.8

Notes: Other rated voltages can be specially ordered.

CHARACTERISTICS

Insulation resistance	Between open contacts	1000MΩ (1000VDC)
	Between contact and coil	1000MΩ (1000VDC)
Dielectric strength	Between open contacts	2200Vrms
	Between coil & contacts	2200Vrms
Nominal voltage (VDC)	12	24
Operate time (ms)	≤30	≤30
Release time (ms)	≤10	≤10
Bounce time(ms)	≤5	≤5
Shock resistance	196 m/s ²	
Vibration resistance	10Hz to 500Hz 98m/s ²	
Ambient temperature	-40°C to 85°C	
Humidity	5% to 95%RH	
Protection grade	IP67	
Termination	The M4 internal thread	
Outline dimensions	53x36x39.5	
Weight	Approx. 110g	

Notes: 1) The above values are the initial values at room temperature.
2) The test result can not meet the requirements of voltage resistance and insulation resistance.



HONGFA RELAY

ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2021 Rev. 1.00

订货标记示例

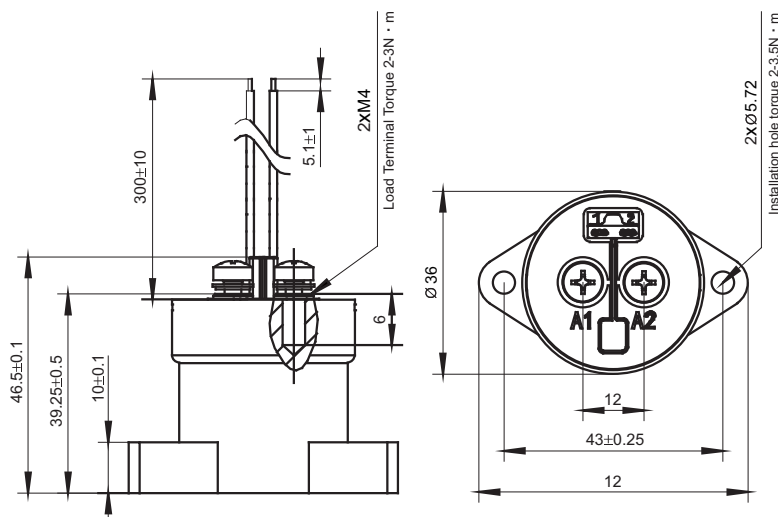
Type	HFZ17	□	-50/	900-	12-	SH	S	L	5	E	-1	(XXX)
Application	Nil: New energy power control V : Vehicle											
Version	50: 50A											
Nominal voltage	900: 12~900VDC											
Coil voltage	12: 12VDC 24: 24VDC											
Contact arrangement	SH: 1 FormA(double-contact of 1 FormA)											
Contact material	S: Silver plated											
Coil terminal	L: Lead wire B: Lead wire with connector											
Load terminal	5: Internal thread mounting											
Appearance and structure	E: Simplified shell structure											
Sort	1: 1 coil											
Special code ¹⁾	XXX: Customer special requirement											

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

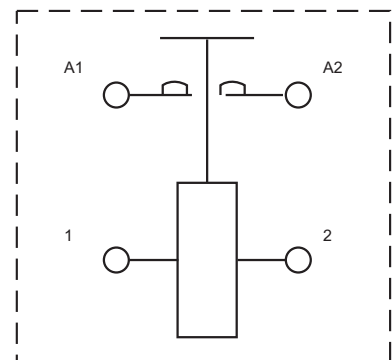
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Outline Dimensions



PCB Layout (Bottom view)

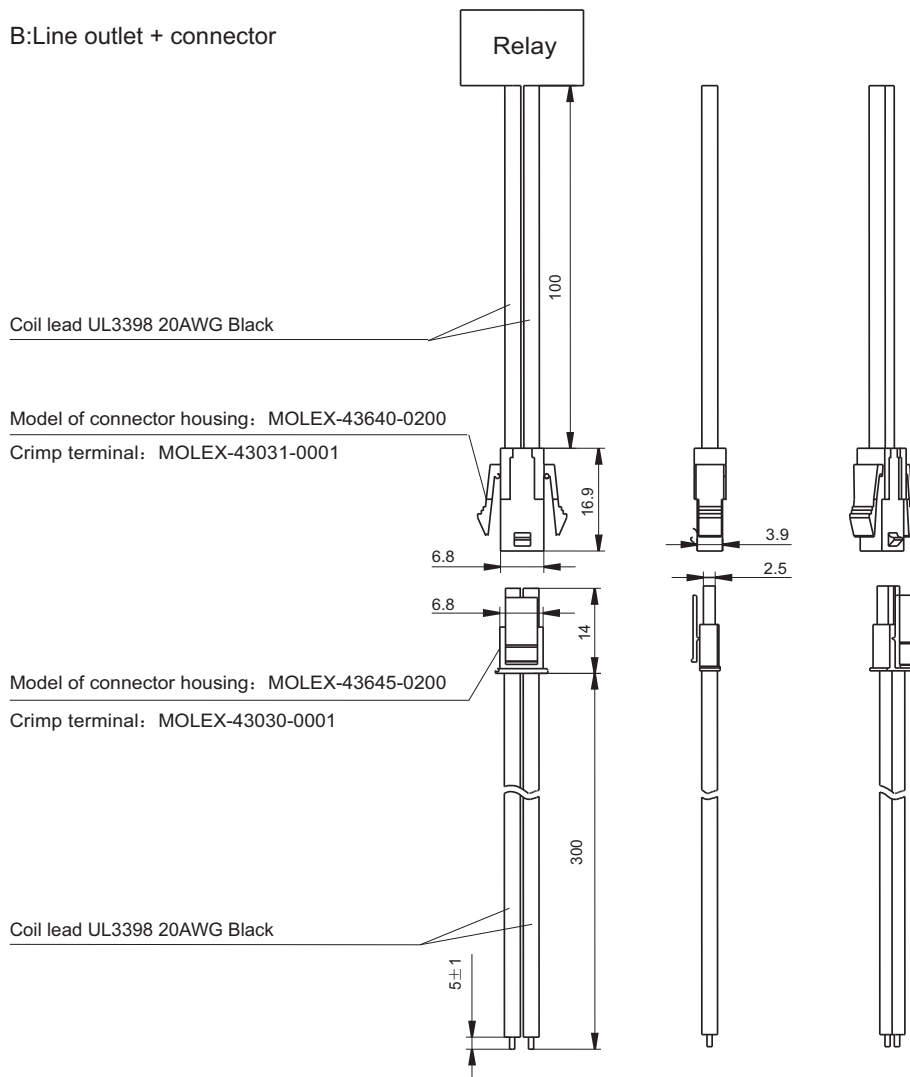


Notes: 1) Dimension tolerance is not indicated for part of the overall dimension of the product. When the overall dimension is less than or equal to 10 mm, the tolerance is ± 0.3 mm; When the overall dimension is between (10 ~ 50) mm, the tolerance is ± 0.5 mm; When the overall dimension is greater than or equal to 50 mm, the tolerance is ± 0.8 mm.
 2) L: Coil lead specifications: UL3398, 20AWG, black; Line length 300mm.
 3) B: Line outlet + connector (See Figure).

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

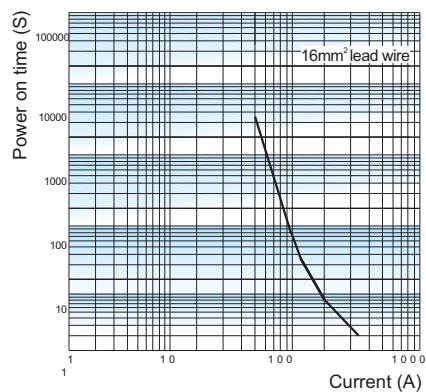
Unit: mm

B:Line outlet + connector



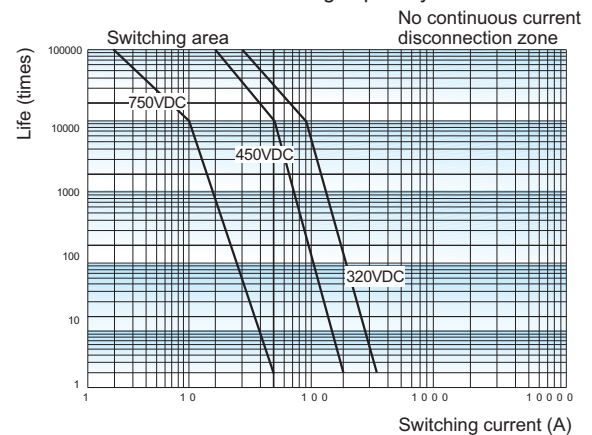
CHARACTERISTIC CURVES

Current carrying capacity



Notes: The above data are measured at room temperature for your reference only. Do not use it to select a fuse directly.

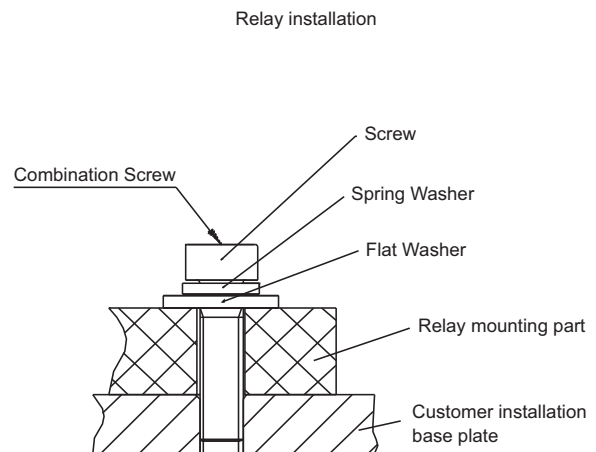
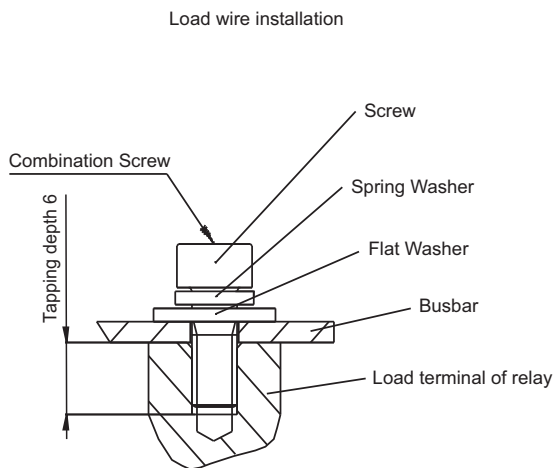
Load switching capability



Notes: Resistive load
Insulation after electrical life test $\geq 50M\Omega$ (500VDC)
As the lifetime is related to many factors, it is recommended to verify the ratings according to the actual application.

Precautions for use

1. In order to suppress the relay coil reverse electromotive force, it is recommended to connect bi-directional TVS diode or varistor with the coil in parallel (voltage is 1.5-2 times of rated voltage). If diode is used, the relay release time will be greatly prolonged, which may lead to the decline of cut-off performance.
Note: the energy-saving product has a coil suppression reverse electromotive force device.
2. The rated values of contact parameters are tested under resistive load. In the case of inductive load with $L/R > 1\text{ms}$, please connect inrush current protection devices for this load. If no measures are taken, electrical durability may decrease and on-off failure may occur. Please leave enough space when design.
3. As a HVDC switching device, it may fail at high temperature when the lifetime and load capacity exceed parameters specified in the manual. The protective circuit which can cut off the load in case of emergency shall be adopted. As a product with limited life, it should be replaced in time to ensure safety.
4. Please avoid grease and other foreign bodies on the terminal, and use connecting wires of 16mm^2 or above; When installing the load terminal, ensure that the power cable is close to the lead terminal. Install and tighten it in the sequence of flat washer, spring washer and nut, or directly use the self-locking nut. Contamination of the lead terminal or incorrect connection sequence can cause severe overheating and melting of the insulation of the connection cable.
5. Please use washers to prevent looseness during installation. Please control the locking torque within the recommended range. If it exceeds the range, it may cause damage to the shell. When using screws, make sure the gasket is thick and strong enough, otherwise it will deform and burst the casing.



Notes: Tapping depth of load internal thread M4 is 6mm.

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HFZ18V-100P

EPOXY SEALED POLARITY SERIES DC RELAY



Features

- Rated 100A switching capability
- Coil does not require polarity, contact load has polarity
- The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment, coils and contacts do not oxidize and contaminate the environment.
- Pre-charging and other applications
- Small size, light weight

RoHS compliant

CONTACT DATA

Contact arrangement	1SH
Contact resistance	3mΩ max.(typ.1m)(6VDC,20A)
Nominal current	100A
Rated load voltage	12~900VDC
Max. breaking current	1000A 320VDC (more than 1 time)
Max.switching power	320kW
Min. load of main contact	1A 12VDC
Min. load of auxiliary contact	8V 100mA
Standard continuous charged current	100A(35mm ²)
Short time overload current	150A 50min (35mm ²) 200A 6min (35mm ²) 300A 50s (35mm ²)
Mechanical endurance	2x10 ⁵ OPS
Electrical endurance	1 x 10 ⁴ OPS (100A 450VDC) 1 x 10 ³ OPS (100A 750VDC) Resistive load, 23°C, 1s on 9s off

COIL DATA

Nominal voltage (VDC)	12	24
Operating voltage (VDC)	9~16	18~32
Max. voltage (VDC)	16	32
Pick-up voltage (VDC)	≤9	≤18
Drop-out voltage (VDC)	≥1	≥2
Coil resistance x (1±7%)	25	110
Min. starting current (A)	--	--
Transient surge current (A)	--	--
Average holding current (A)	0.48	0.218
Steady-state power consumption (W)	Approx.5.8	Approx.5.2

Notes: Other rated voltages can be specially ordered.

CHARACTERISTICS

Insulation resistance	Between open contacts	1000MΩ (1000VDC)
	Between contact and coil	1000MΩ (1000VDC)
Dielectric strength	Between open contacts	2000Vrms
	Between coil & contacts	2000Vrms
Nominal voltage (VDC)		12 24
Operate time (ms)		≤30 ≤30
Release time (ms)		≤10 ≤10
Bounce time(ms)		≤5 ≤5
Shock resistance		196 m/s ²
Vibration resistance		10Hz to 500Hz 98m/s ²
Ambient temperature		-40°C to 85°C
Humidity		5% to 95%RH
Protection grade		IP67
Termination		The M5 internal thread
Outline dimensions		68x50.6x58.3
Weight		350g

Notes: 1) The above values are the initial values at room temperature.
2) The test result can not meet the requirements of voltage resistance and insulation resistance.



HONGFA RELAY

ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2021 Rev. 1.00

ORDERING INFORMATION

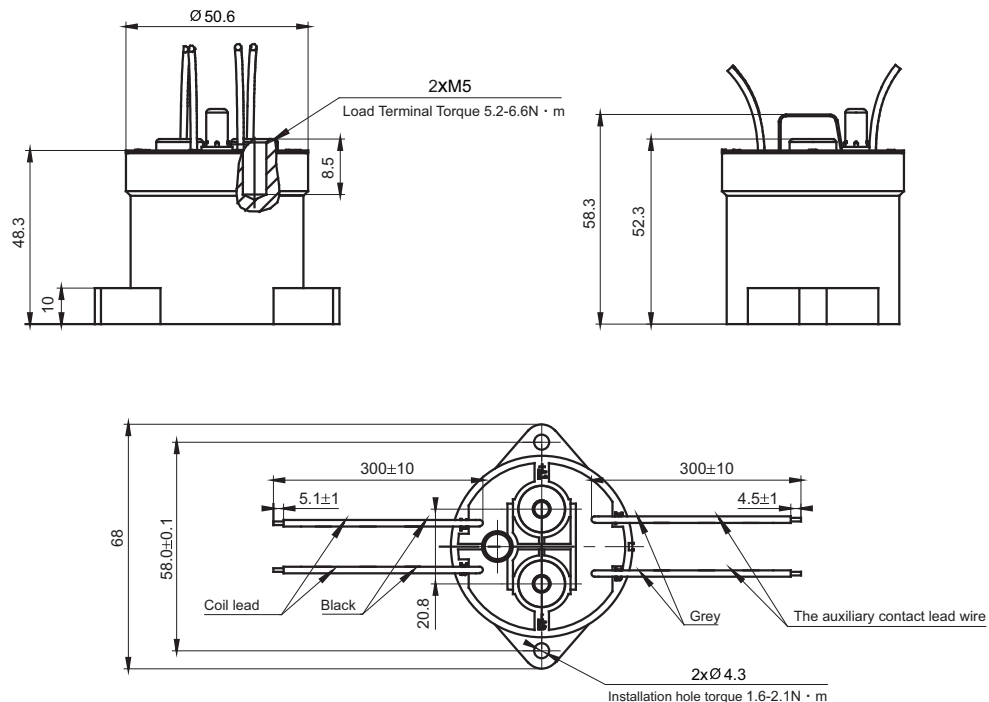
Type	HFZ18	<input type="checkbox"/>	-100	P/900-	12-	SH	S	A	L	5	-1	(XXX)
Application	Nil: New Energy Power Control V : Vehicle											
Version	100: 100A											
Load polarity	P: polar											
Nominal voltage	900: 12~900VDC											
Coil voltage	12: 12VDC 24: 24VDC											
Contact arrangement	SH: 1 FormA(double-contact of 1 FormA)											
Contact material	S: Silver plated											
Auxiliary Contact Form	Nil: Without auxiliary contact A: Normally open auxiliary contact B: Normally closed auxiliary contact											
Coil terminal	L: Lead wire B: Lead wire with connector											
Load terminal	5: Internal thread mounting											
Sort	1: 1 coil											
Special code ¹⁾	XXX: Customer special requirement						Nil: Standard					

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

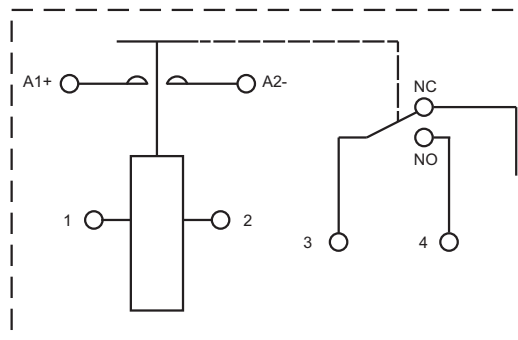
Outline Dimensions



OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

PCB Layout (Bottom view)

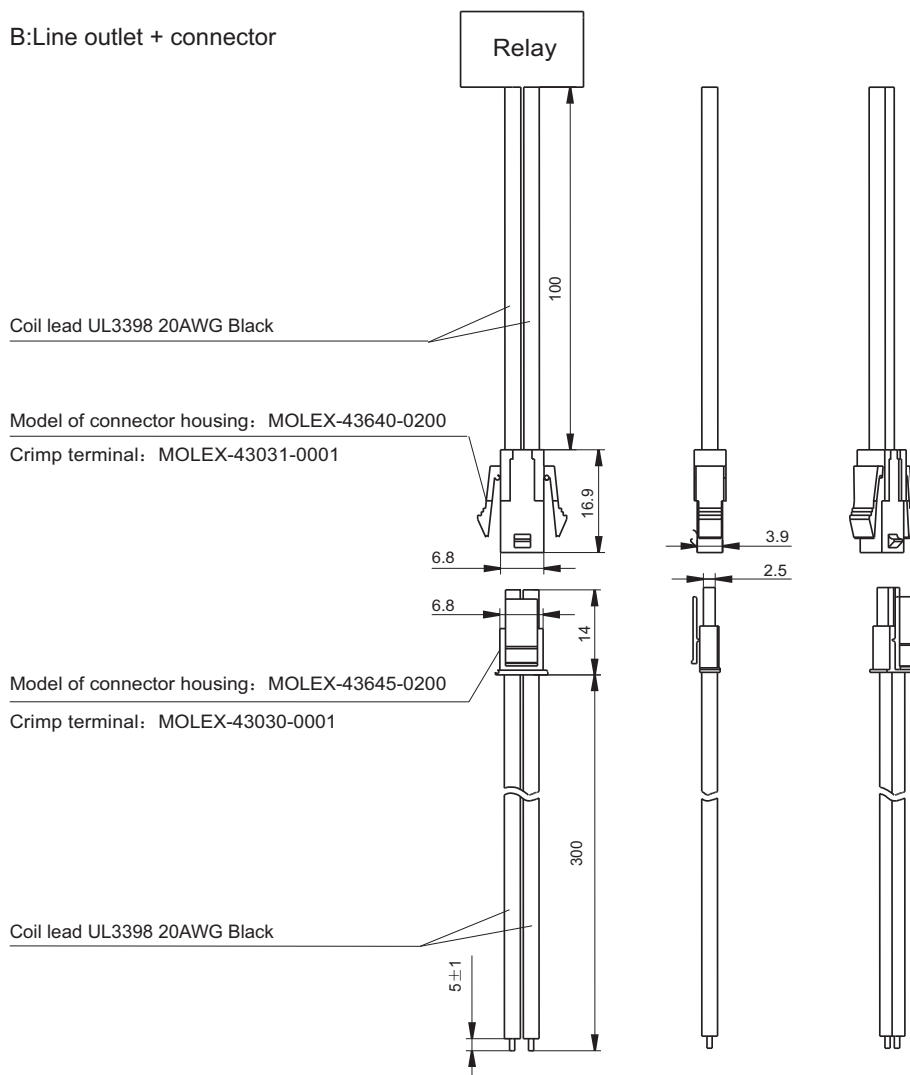


Notes: 1) Dimension tolerance is not indicated for part of the overall dimension of the product. When the overall dimension is less than or equal to 10 mm, the tolerance is ± 0.3 mm; When the overall dimension is between (10 ~ 50) mm, the tolerance is ± 0.5 mm; When the overall dimension is greater than or equal to 50 mm, the tolerance is ± 0.8 mm.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

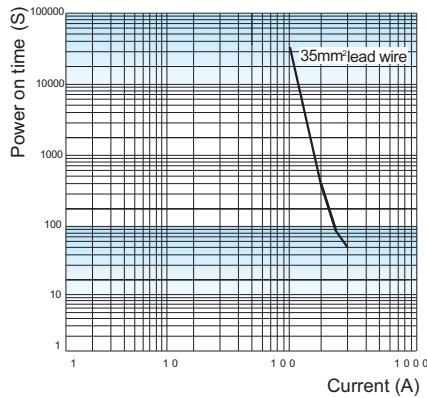
Unit: mm

B:Line outlet + connector



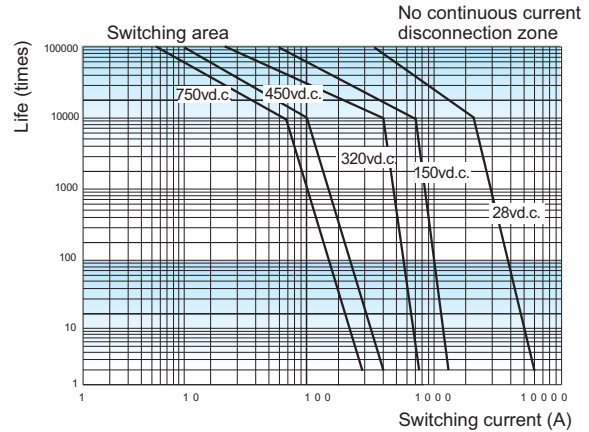
CHARACTERISTIC CURVES

Current carrying capacity



Notes: The above data are measured at room temperature for your reference only. Do not use it to select a fuse directly.

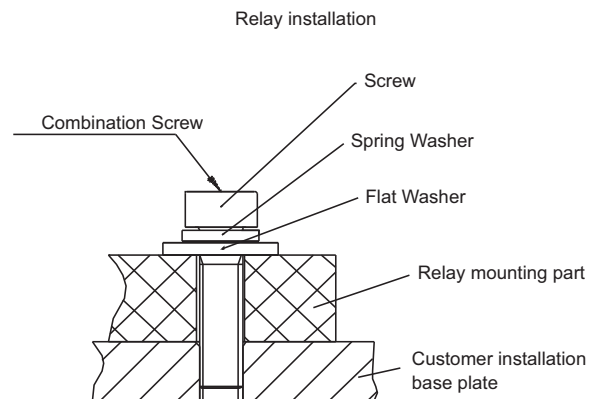
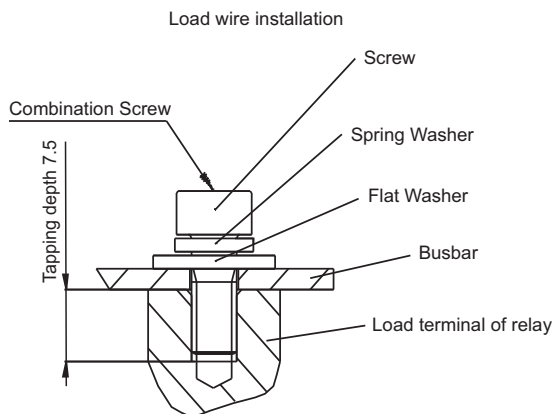
Load switching capability



Notes: Resistive load
Insulation after electrical life test $\geq 50M\Omega$ (500VDC)
As the lifetime is related to many factors, it is recommended to verify the ratings according to the actual application.

Precautions for use

1. In order to suppress the relay coil reverse electromotive force, it is recommended to connect bi-directional TVS diode or varistor with the coil in parallel (voltage is 1.5-2 times of rated voltage). If diode is used, the relay release time will be greatly prolonged, which may lead to the decline of cut-off performance.
Note: the energy-saving product has a coil suppression reverse electromotive force device.
2. The rated values of contact parameters are tested under resistive load. In the case of inductive load with $L/R > 1ms$, please connect inrush current protection devices for this load. If no measures are taken, electrical durability may decrease and on-off failure may occur. Please leave enough space when design.
3. As a HVDC switching device, it may fail at high temperature when the lifetime and load capacity exceed parameters specified in the manual. The protective circuit which can cut off the load in case of emergency shall be adopted. As a product with limited life, it should be replaced in time to ensure safety.
4. Please avoid grease and other foreign bodies on the terminal, and use connecting wires of 10mm² or above; When installing the load terminal, ensure that the power cable is close to the lead terminal. Install and tighten it in the sequence of flat washer, spring washer and nut, or directly use the self-locking nut. Contamination of the lead terminal or incorrect connection sequence can cause severe overheating and melting of the insulation of the connection cable.
5. Please use washers to prevent looseness during installation. Please control the locking torque within the recommended range. If it exceeds the range, it may cause damage to the shell. When using screws, make sure the gasket is thick and strong enough, otherwise it will deform and burst the casing.



Notes: Tapping depth of load internal thread M5 is 7.5mm.

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HFZ18V-150P

EPOXY SEALED POLARITY SERIES DC RELAY



Features

- Rated 150A switching capability
- Coil does not require polarity, contact load has polarity
- The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment, coils and contacts do not oxidize and contaminate the environment.
- Pre-charging and other applications
- Small size, light weight

RoHS compliant

CONTACT DATA

Contact arrangement	1SH
Contact resistance	3mΩ max.(typ.1mΩ) (6VDC,20A)
Nominal current	150A
Rated load voltage	12~900VDC
Max. breaking current	1200A 320VDC (more than 1 time)
Max.switching power	480kW
Min. load of main contact	1A 12VDC
Min. load of auxiliary contact	8V 100mA
Standard continuous charged current	150A(50mm ²)
Short time overload current	200A 40min (50mm ²) 300A 100s (50mm ²) 400A 40s (50mm ²)
Mechanical endurance	2x10 ⁵ OPS
Electrical endurance	1 x 10 ⁴ OPS (150A 450VDC) 1 x 10 ³ OPS (150A 750VDC) Resistive load, 23°C, 1s on 9s off

CHARACTERISTICS

Insulation resistance	Between open contacts	1000MΩ (1000VDC)
	Between contact and coil	1000MΩ (1000VDC)
Dielectric strength	Between open contacts	2000Vrms
	Between coil & contacts	2000Vrms
Nominal voltage (VDC)	12	24
Operate time (ms)	≤30	≤30
Release time (ms)	≤10	≤10
Bounce time(ms)	≤5	≤5
Shock resistance	196 m/s ²	
Vibration resistance	10Hz to 500Hz 98m/s ²	
Ambient temperature	-40°C to 85°C	
Humidity	5% to 95%RH	
Protection grade	IP67	
Termination	The M6 internal thread	
Outline dimensions	68x50.6x58.3	
Weight	350g	

Notes: 1) The above values are the initial values at room temperature.
2) The test result can not meet the requirements of voltage resistance and insulation resistance.

COIL DATA

Nominal voltage (VDC)	12	24
Operating voltage (VDC)	9~16	18~32
Max. voltage (VDC)	16	32
Pick-up voltage (VDC)	≤9	≤18
Drop-out voltage (VDC)	≥1	≥2
Coil resistance x (1±7%)	25	110
Min. starting current (A)	--	--
Transient surge current (A)	--	--
Average holding current (A)	0.48	0.218
Steady-state power consumption (W)	Approx. 5.8	Approx. 5.2

Notes: Other rated voltages can be specially ordered.



HONGFA RELAY

ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2021 Rev. 1.00

ORDERING INFORMATION

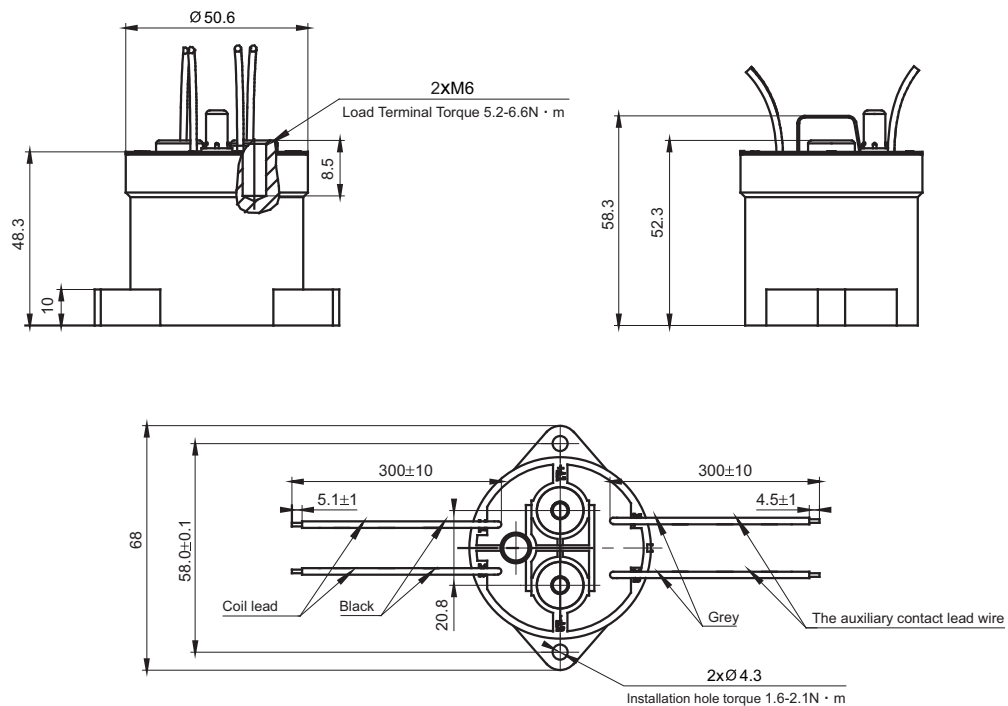
Type	HFZ18	<input type="checkbox"/>	-150	P/	900-	12-	SH	S	A	L	5	-1	(XXX)
Application	Nil: New Energy Power Control V : Vehicle												
Version	150: 150A												
Load polarity	P: polar												
Nominal voltage	900: 12~900VDC												
Coil voltage	12: 12VDC 24: 24VDC												
Contact arrangement	SH: 1 FormA(double-contact of 1 FormA)												
Contact material	S: Silver plated												
Auxiliary Contact Form	Nil: Without auxiliary contact A: Normally open auxiliary contact B: Normally closed auxiliary contact												
Coil terminal	L: Lead wire B: Lead wire with connector												
Load terminal	5: Internal thread mounting												
Sort	1: 1 coil												
Special code ¹⁾	XXX: Customer special requirement						Nil: Standard						

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

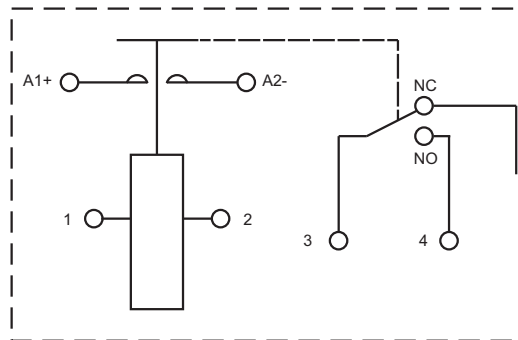
Outline Dimensions



OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

PCB Layout (Bottom view)

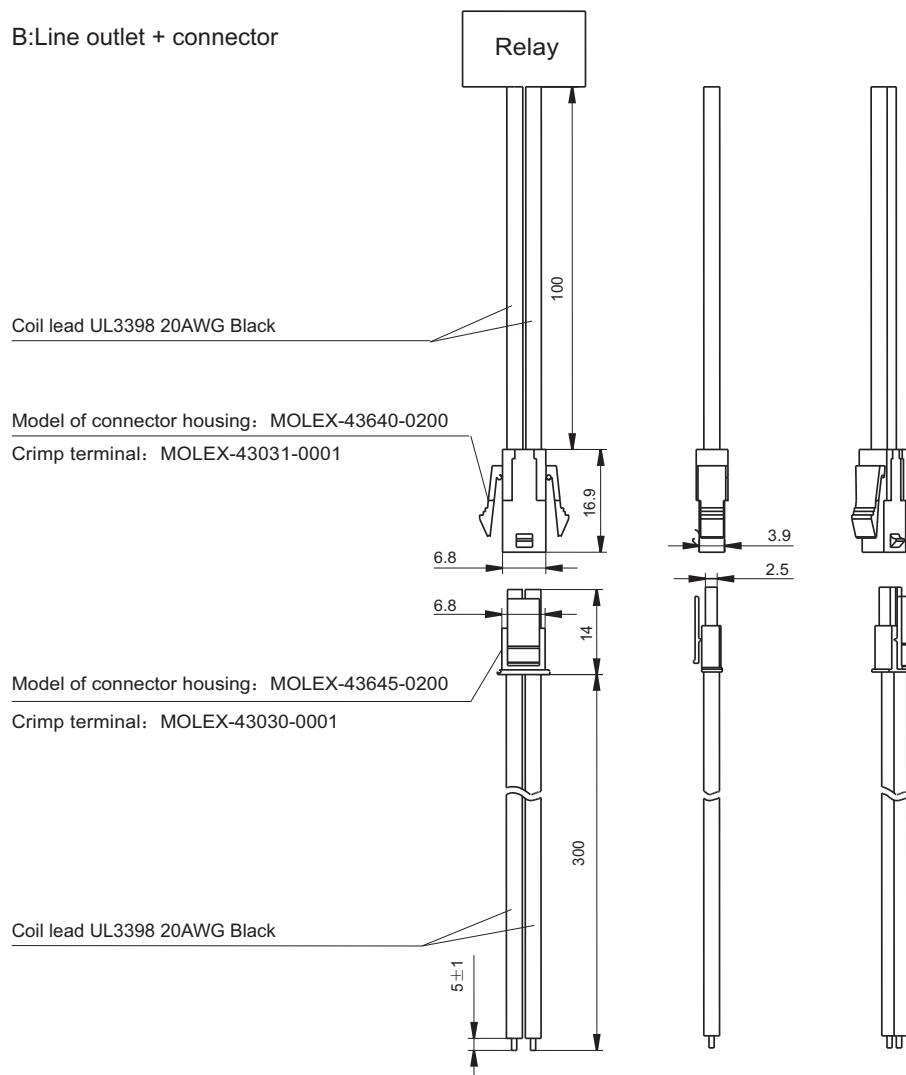


Notes: 1) Dimension tolerance is not indicated for part of the overall dimension of the product. When the overall dimension is less than or equal to 10 mm, the tolerance is ± 0.3 mm; When the overall dimension is between (10 ~ 50) mm, the tolerance is ± 0.5 mm; When the overall dimension is greater than or equal to 50 mm, the tolerance is ± 0.8 mm.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

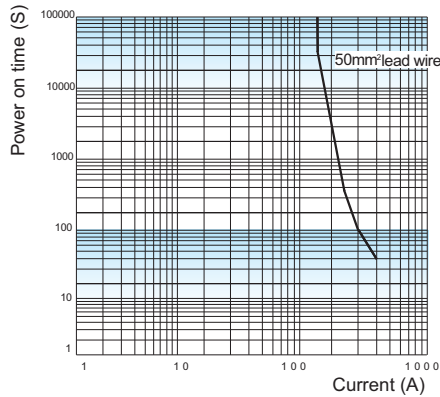
Unit: mm

B:Line outlet + connector



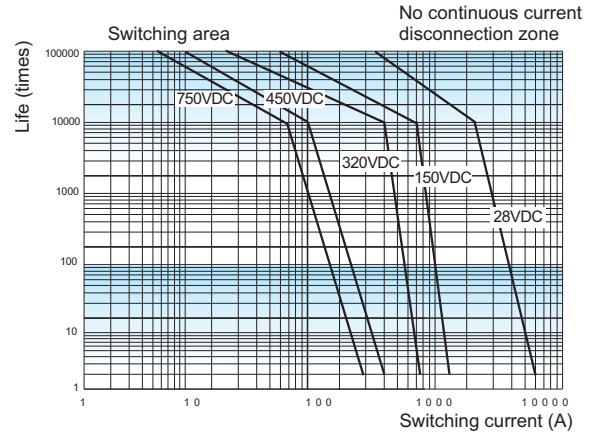
CHARACTERISTIC CURVES

Current carrying capacity



Notes: The above data are measured at room temperature for your reference only. Do not use it to select a fuse directly.

Load switching capability

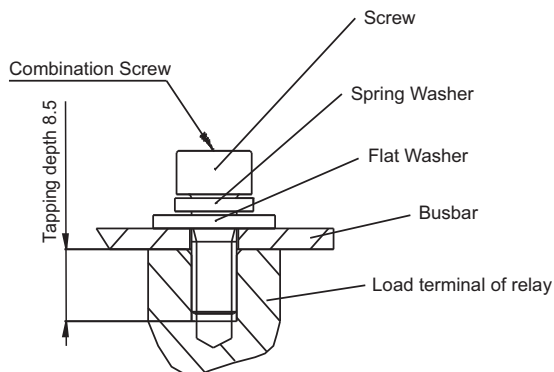


Notes: Resistive load
Insulation after electrical life test $\geq 50M\Omega$ (500VDC)
As the lifetime is related to many factors, it is recommended to verify the ratings according to the actual application.

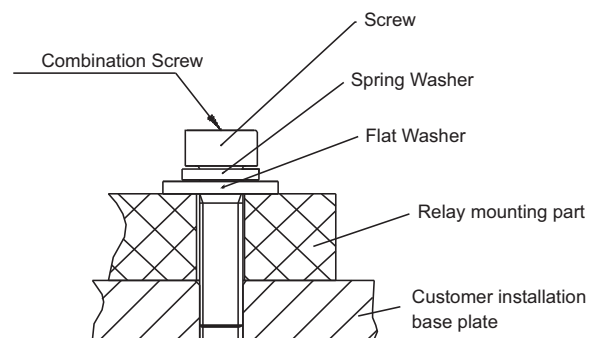
Precautions for use

1. In order to suppress the relay coil reverse electromotive force, it is recommended to connect bi-directional TVS diode or varistor with the coil in parallel (voltage is 1.5-2 times of rated voltage). If diode is used, the relay release time will be greatly prolonged, which may lead to the decline of cut-off performance.
Note: the energy-saving product has a coil suppression reverse electromotive force device.
2. The rated values of contact parameters are tested under resistive load. In the case of inductive load with $L/R > 1ms$, please connect inrush current protection devices for this load. If no measures are taken, electrical durability may decrease and on-off failure may occur. Please leave enough space when design.
3. As a HVDC switching device, it may fail at high temperature when the lifetime and load capacity exceed parameters specified in the manual. The protective circuit which can cut off the load in case of emergency shall be adopted. As a product with limited life, it should be replaced in time to ensure safety.
4. Please avoid grease and other foreign bodies on the terminal, and use connecting wires of 50mm² or above; When installing the load terminal, ensure that the power cable is close to the lead terminal. Install and tighten it in the sequence of flat washer, spring washer and nut, or directly use the self-locking nut. Contamination of the lead terminal or incorrect connection sequence can cause severe overheating and melting of the insulation of the connection cable.
5. Please use washers to prevent looseness during installation. Please control the locking torque within the recommended range. If it exceeds the range, it may cause damage to the shell. When using screws, make sure the gasket is thick and strong enough, otherwise it will deform and burst the casing.

Load wire installation



Relay installation



Notes: Tapping depth of load internal thread M6 is 8.5mm.

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HFZ20V-150P

EPOXY SEALED POLARITY SERIES DC RELAY



Features

- Rated 150A switching capability
- Coil does not require polarity, contact load has polarity
- The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment, coils and contacts do not oxidize and contaminate the environment.
- Pre-charging and other applications
- Small size, light weight

RoHS compliant

CONTACT DATA

Contact arrangement	1SH
Contact resistance	3mΩ max. (typ. 0.5mΩ)(6VDC,20A)
Nominal current	150A
Rated load voltage	12~200VDC
Max. breaking current	1500A 200VDC (more than 1 time)
Max. switching power	300kW
Min. load	1A 12VDC
Standard continuous charged current	150A(50mm ²)
Short time overload current	200A 15min (50mm ²) 300A 3min (50mm ²) 400A 30s (50mm ²)
Mechanical endurance	1x10 ⁶ OPS
Electrical endurance	6 x 10 ³ OPS (150A 200VDC) Resistive load, 23°C, 1s on 9s off

COIL DATA

Nominal voltage (VDC)	12	24
Operating voltage (VDC)	9~16	18~32
Max. voltage (VDC)	16	32
Pick-up voltage (VDC)	≤9	≤18
Drop-out voltage (VDC)	≥1	≥2
Coil resistance x (1±7%)	26	96
Min. starting current (A)	0.46	0.25
Transient surge current (A)	--	--
Average holding current (A)	0.48	0.25
Steady-state power consumption (W)	Approx.5.5	Approx.6

Notes: Other rated voltages can be specially ordered.

CHARACTERISTICS

Insulation resistance	Between open contacts	1000MΩ (1000VDC)	
	Between contact and coil	1000MΩ (1000VDC)	
Dielectric strength	Between open contacts	2000Vrms	
	Between coil & contacts	2000Vrms	
Nominal voltage (VDC)		12	24
Operate time (ms)		≤30	≤30
Release time (ms)		≤10	≤10
Bounce time(ms)		≤5	≤5
Shock resistance		196 m/s ²	
Vibration resistance		10Hz to 500Hz 98m/s ²	
Ambient temperature		-40°C to 85°C	
Humidity		5% to 95%RH	
Protection grade		IP67	
Termination		The M5 internal thread	
Outline dimensions		54x40.3x60.3	
		53.3x41.1x60.1	
Weight		220g	

Notes: 1) The above values are the initial values at room temperature.
2) The test result can not meet the requirements of voltage resistance and insulation resistance.



HONGFA RELAY

ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2021 Rev. 1.00

ORDERING INFORMATION

Type	HFZ20	<input type="checkbox"/>	-150	P/	200-	12-	SH	S	A	L	5	Y	E	-1	(XXX)
Application	Nil: New Energy Power Control V : Vehicle														
Version	150: 150A														
Load polarity	P: polar														
Nominal voltage	900: 12~900VDC														
Coil voltage	12: 12VDC 24: 24VDC														
Contact arrangement	SH: 1 Form A(double-contact of 1 Form A)														
Contact material	S: Silver plated														
Auxiliary Contact Form	Nil: Without auxiliary contact A: Normally open auxiliary contact B: Normally closed auxiliary contact														
Coil terminal	L: Lead wire B: Lead wire with connector														
Load terminal	5: Internal thread mounting														
Installation method	Nil: Vertical Y: Horizontal														
Appearance and ttructure	E: Simplified shell structure														
Sort	1: 1 coil														
Special code ¹⁾	XXX: Customer special requirement Nil: Standard														

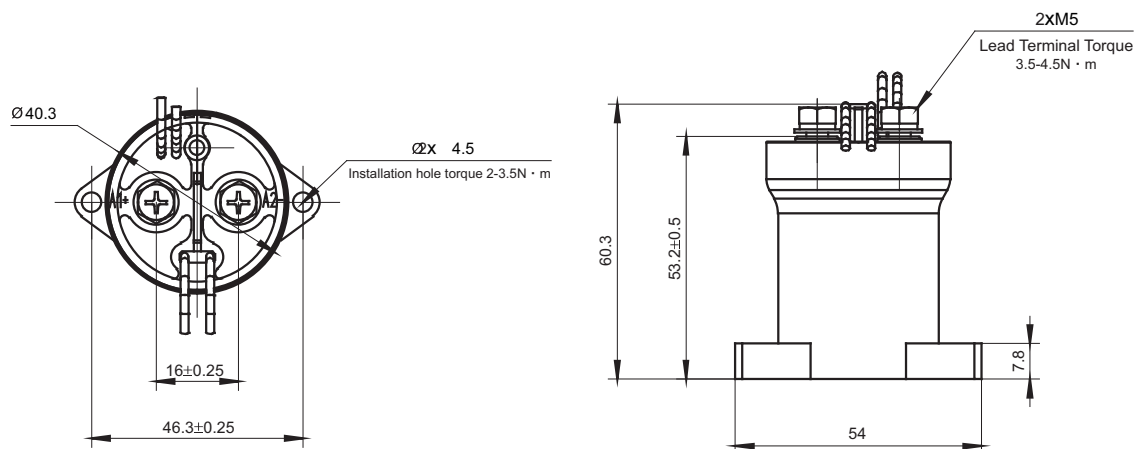
Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Outline Dimensions

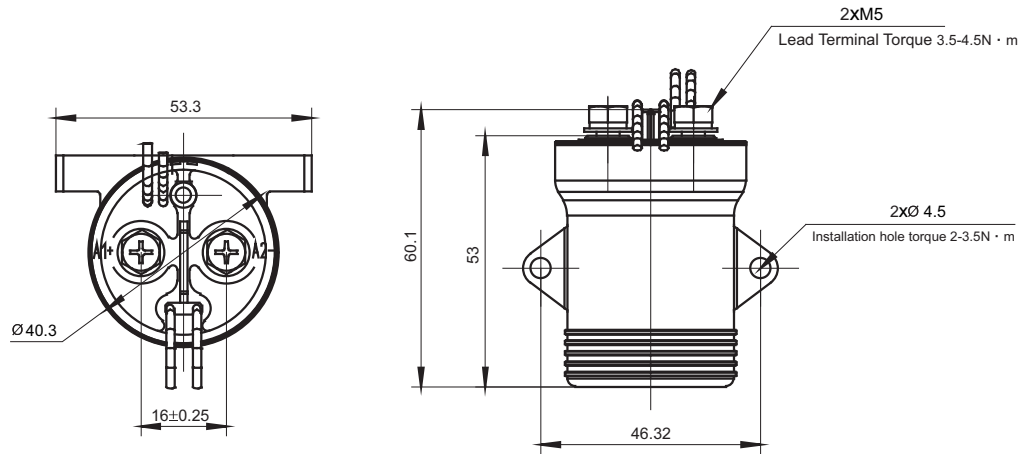
Vertical



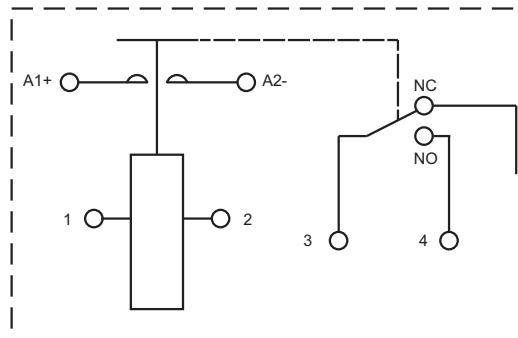
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Horizontal



PCB Layout (Bottom view)



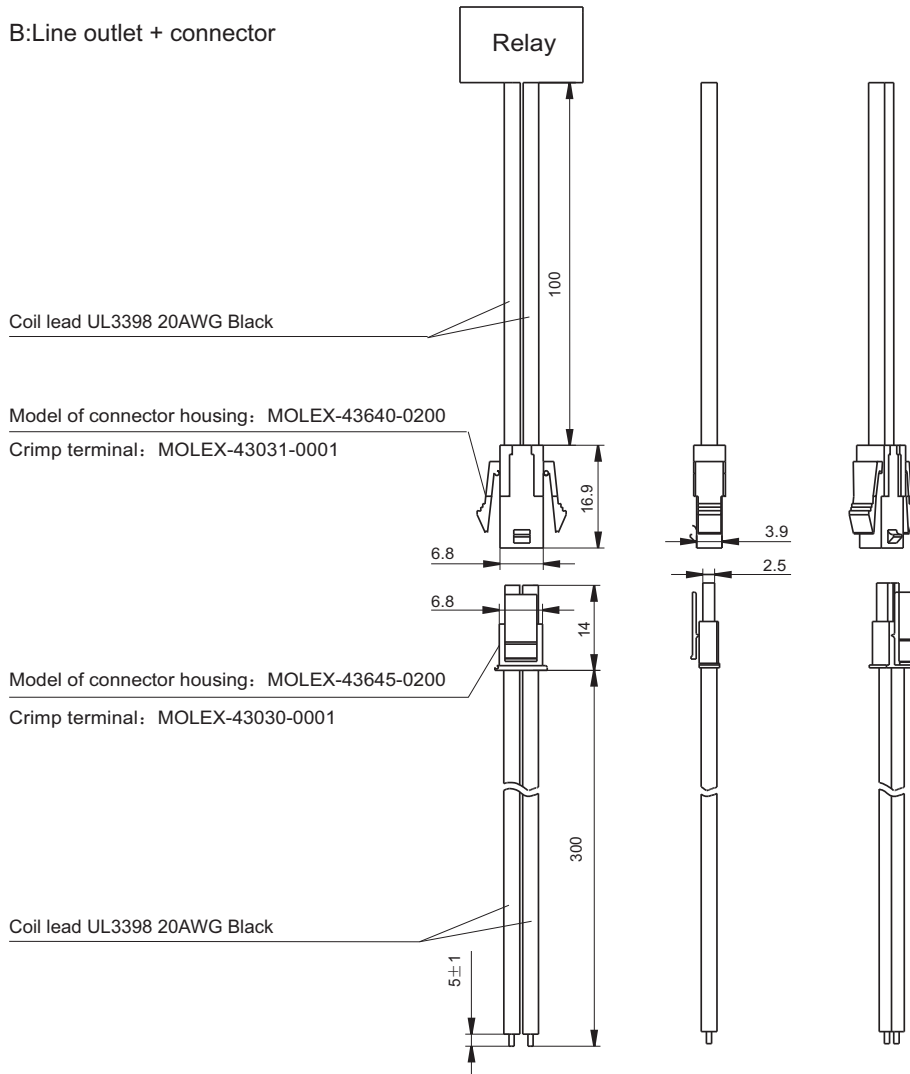
A1, A2 are the load terminals; 1 and 2 are the coil terminals; polarity on the load terminal and no polarity the coil terminal.

Notes: 1) Dimension tolerance is not indicated for part of the overall dimension of the product. When the overall dimension is less than or equal to 10 mm, the tolerance is ± 0.3 mm; When the overall dimension is between (10 ~ 50) mm, the tolerance is ± 0.5 mm; When the overall dimension is greater than or equal to 50 mm, the tolerance is ± 0.8 mm.
2) L: Coil lead specifications: UL3398, 20AWG, black; Line length 300mm.
3) B: Line outlet + connector (See Figure).

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

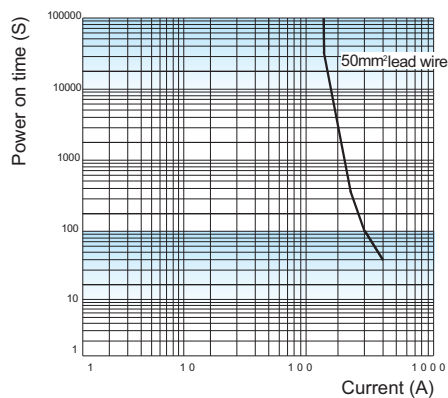
Unit: mm

B:Line outlet + connector



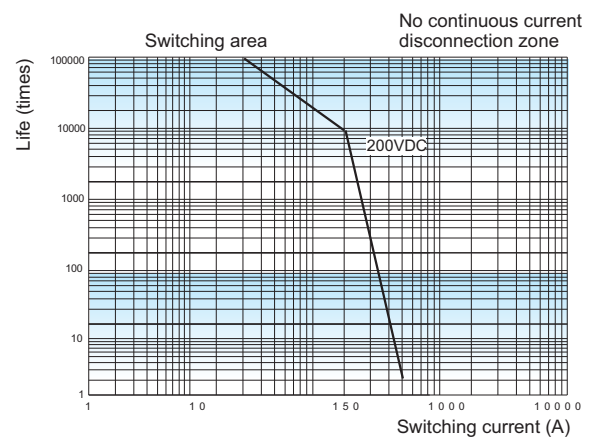
CHARACTERISTIC CURVES

Current carrying capacity



Notes: The above data are measured at room temperature for your reference only. Do not use it to select a fuse directly.

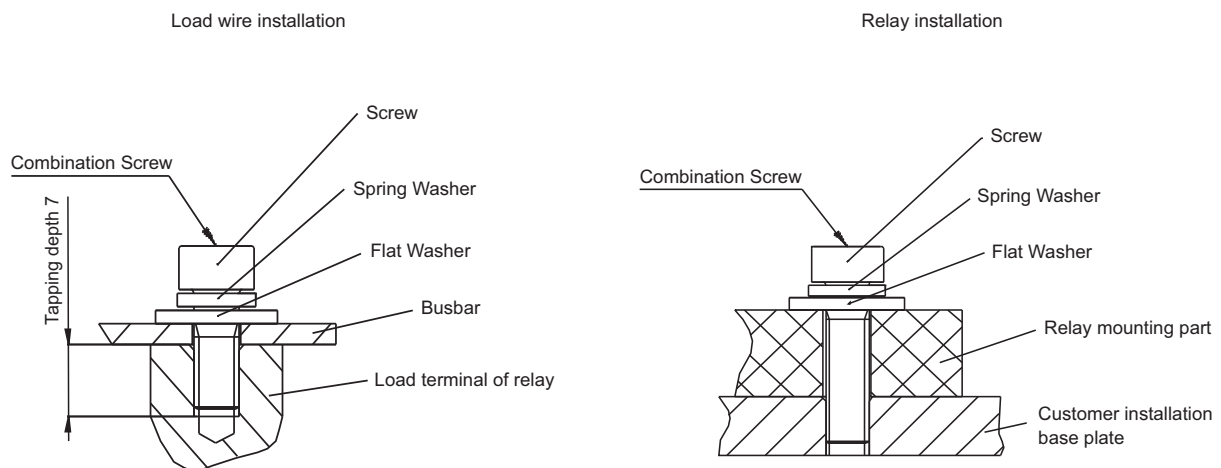
Load switching capability



Notes: Resistive load
Insulation after electrical life test $\geq 50\text{M}\Omega$ (500VDC)
As the lifetime is related to many factors, it is recommended to verify the ratings according to the actual application.

Precautions for use

1. In order to suppress the relay coil reverse electromotive force, suggest to connect the coil with nonlinear resistor parallelly (variable resistance is recommended to use, maximum energy tolerance $> 1 \text{ J}$, voltage in 1.5-2 times of the rated voltage, if use diode, the release time will greatly lengthen and degrade the cutting performance. (Energy-saving products have built-in suppression reverse electromotive force circuit, surge suppression devices are not required)
2. The rated values of contact parameters are tested under resistive load. In the case of inductive load with $L/R > 1 \text{ ms}$, please connect inrush current protection devices for this load. If no measures are taken, electrical durability may decrease and on-off failure may occur. Please leave enough space when design.
3. As a HVDC switching device, it may fail at high temperature when the lifetime and load capacity exceed parameters specified in the manual. The protective circuit which can cut off the load in case of emergency shall be adopted. As a product with limited life, it should be replaced in time to ensure safety.
4. Please avoid grease and other foreign bodies on the terminal, and use connecting wires of 50 mm^2 or above; When installing the load terminal, ensure that the power cable is close to the lead terminal. Install and tighten it in the sequence of flat washer, spring washer and nut, or directly use the self-locking nut. Contamination of the lead terminal or incorrect connection sequence can cause severe overheating and melting of the insulation of the connection cable.
5. Please use washers to prevent looseness during installation. Please control the locking torque within the recommended range. If it exceeds the range, it may cause damage to the shell. When using screws, make sure the gasket is thick and strong enough, otherwise it will deform and burst the casing.



Notes: Tapping depth of load internal thread M5 is 7mm.

Disclaimer

The specification is for reference only. See "Terminology and Guidelines" for more information. Specifications subject to change without notice. In case there is specific criterion (such as mission profile, technical specification, PPAP etc.) checked and agreed by and between customer and Hongfa, this specific criterion should be taken as standard regarding any requirement on Hongfa product.

We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

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HFZ20V-200P

EPOXY SEALED POLARITY SERIES DC RELAY



Features

- Rated 200A switching capability
- Coil does not require polarity, contact load has polarity
- The relay has epoxy resin encapsulation and sealing structure, which can work in explosive or hazardous environment, coils and contacts do not oxidize and contaminate the environment.
- Pre-charging and other applications
- Small size, light weight

RoHS compliant

CONTACT DATA

Contact arrangement	1SH
Contact resistance	3mΩ max.(typ.1mΩ) (6VDC,20A)
Nominal current	200A
Rated load voltage	12~200VDC
Max. breaking current	2000A 200VDC (more than 1 time)
Max.switching power	400kW
Min. load of main contact	1A 12VDC
Min. load of auxiliary contact	8V 100mA
Standard continuous charged current	200A(95mm ²)
Short time overload current	250A 30min (95mm ²) 300A 5min (95mm ²) 400A 20s (95mm ²)
Mechanical endurance	2x10 ⁵ OPS
Electrical endurance	1 x 10 ⁴ OPS (150A 450VDC) Resistive load, 23°C, 1s on 9s off

CHARACTERISTICS

Insulation resistance	Between open contacts	1000MΩ (1000VDC)	
	Between contact and coil	1000MΩ (1000VDC)	
Dielectric strength	Between open contacts	2000Vrms	
	Between coil & contacts	2000Vrms	
Nominal voltage (VDC)		12	24
Operate time (ms)		≤30	≤30
Release time (ms)		≤10	≤10
Bounce time(ms)		≤5	≤5
Shock resistance		196 m/s ²	
Vibration resistance		10Hz to 500Hz 98m/s ²	
Ambient temperature		-40°C to 85°C	
Humidity		5% to 95%RH	
Protection grade		IP67	
Termination		The M6 internal thread	
Outline dimensions		68x50.6x58.3	
Weight		350g	

Notes: 1) The above values are the initial values at room temperature.
2) The test result can not meet the requirements of voltage resistance and insulation resistance.

COIL DATA

Nominal voltage (VDC)	12	24
Operating voltage (VDC)	9~16	18~32
Max. voltage (VDC)	16	32
Pick-up voltage (VDC)	≤9	≤18
Drop-out voltage (VDC)	≥1	≥2
Coil resistance x (1±7%)	25	110
Min. starting current (A)	--	--
Transient surge current (A)	--	--
Average holding current (A)	0.48	0.218
Steady-state power consumption (W)	Approx. 5.8	Approx. 5.2

Notes: Other rated voltages can be specially ordered.



HONGFA RELAY

ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

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ORDERING INFORMATION

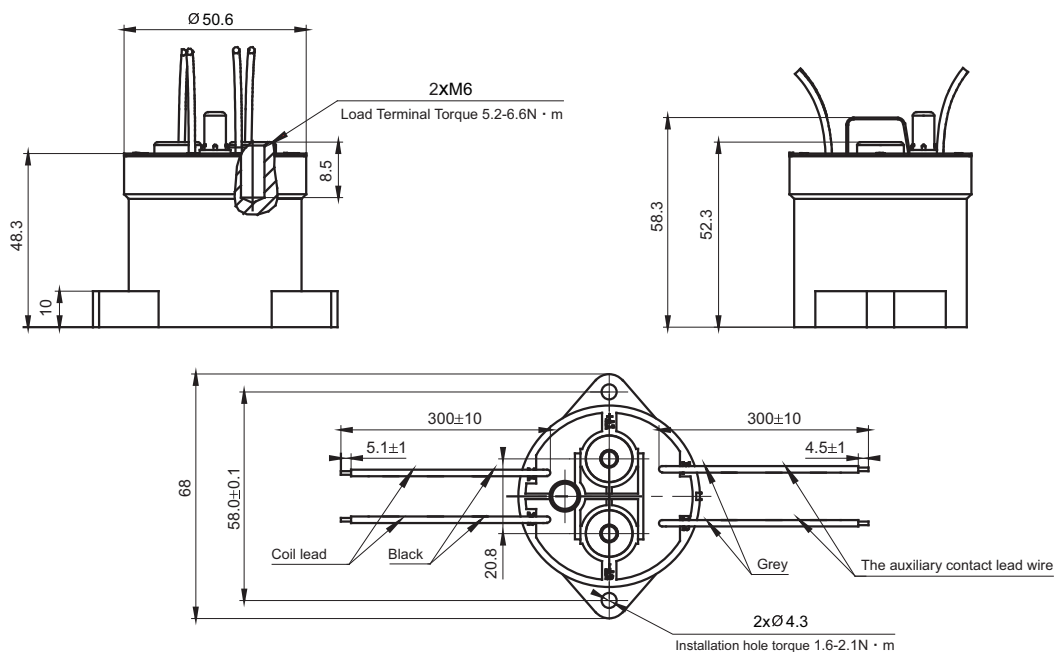
Type	HFZ20	<input type="checkbox"/>	-200	P/200-	12-	SH	S	A	L	5	-1	(XXX)
Application	Nil: New Energy Power Control V : Vehicle											
Version	200: 200A											
Load polarity	P: polar											
Nominal voltage	200: 12~200VDC											
Coil voltage	12: 12VDC 24: 24VDC											
Contact arrangement	SH: 1 FormA(double-contact of 1 FormA)											
Contact material	S: Silver plated											
Auxiliary Contact Form	Nil: Without auxiliary contact A: Normally open auxiliary contact B: Normally closed auxiliary contact											
Coil terminal	L: Lead wire B: Lead wire with connector											
Load terminal	5: Internal thread mounting											
Sort	1: 1 coil											
Special code ¹⁾	XXX: Customer special requirement						Nil: Standard					

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

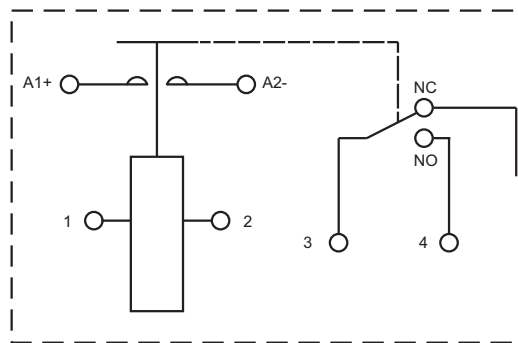
Outline Dimensions



OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

PCB Layout (Bottom view)

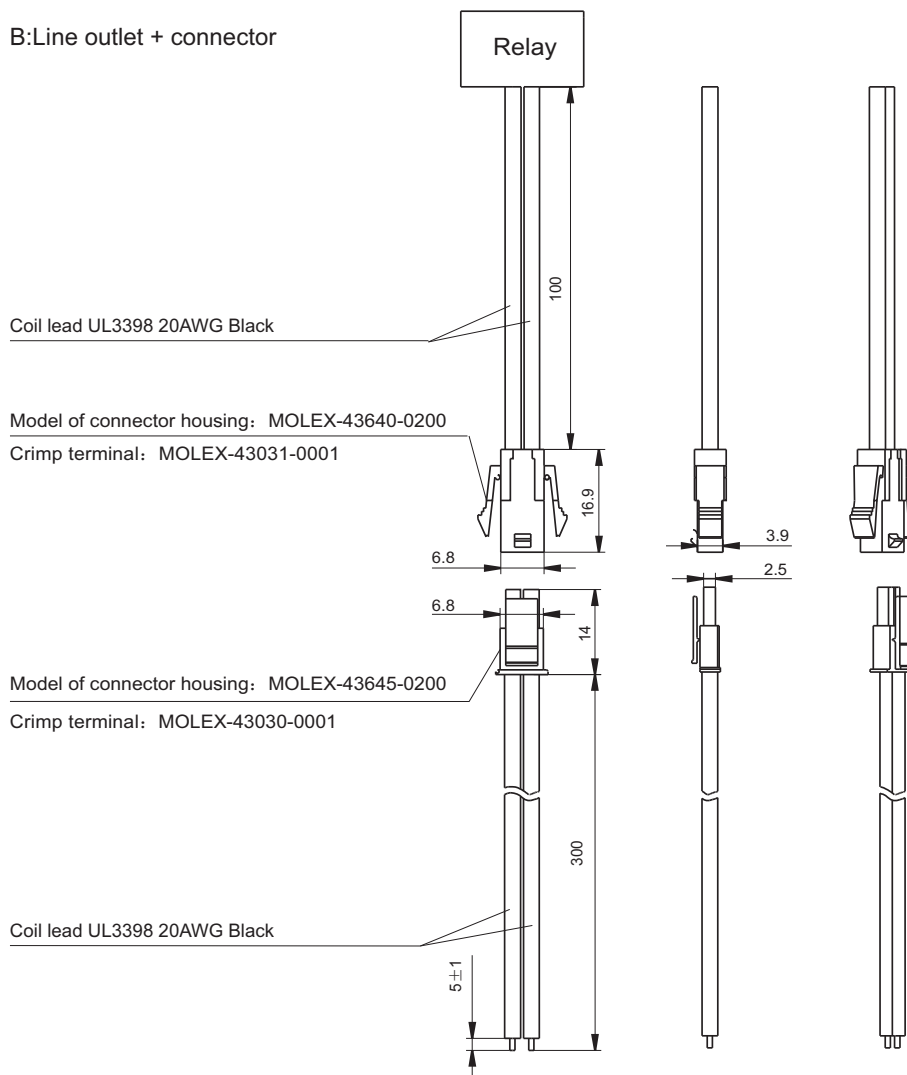


Notes: 1) Dimension tolerance is not indicated for part of the overall dimension of the product. When the overall dimension is less than or equal to 10 mm, the tolerance is ± 0.3 mm; When the overall dimension is between (10 ~ 50) mm, the tolerance is ± 0.5 mm; When the overall dimension is greater than or equal to 50 mm, the tolerance is ± 0.8 mm.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

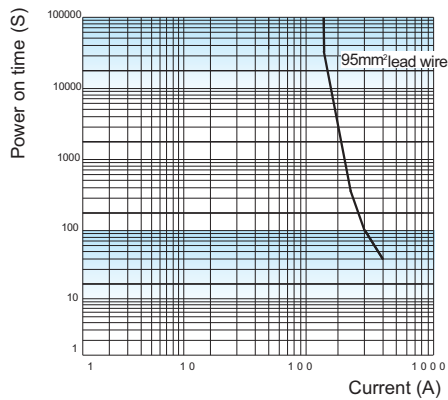
Unit: mm

B:Line outlet + connector



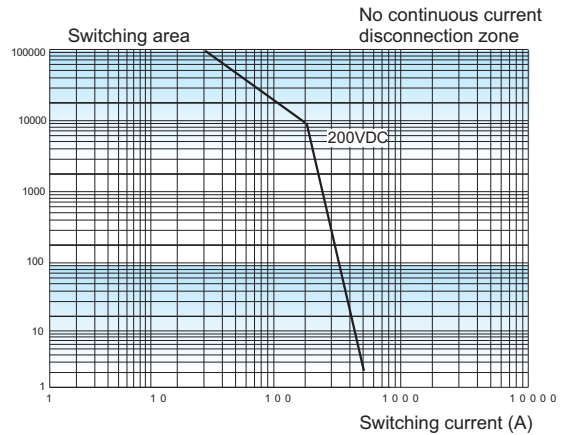
CHARACTERISTIC CURVES

Current carrying capacity



Notes: The above data are measured at room temperature for your reference only. Do not use it to select a fuse directly.

Load switching capability

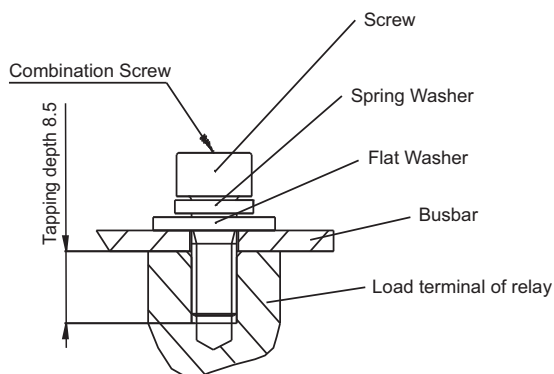


Notes: Resistive load
Insulation after electrical life test $\geq 50\text{M}\Omega$ (500VDC)
As the lifetime is related to many factors, it is recommended to verify the ratings according to the actual application.

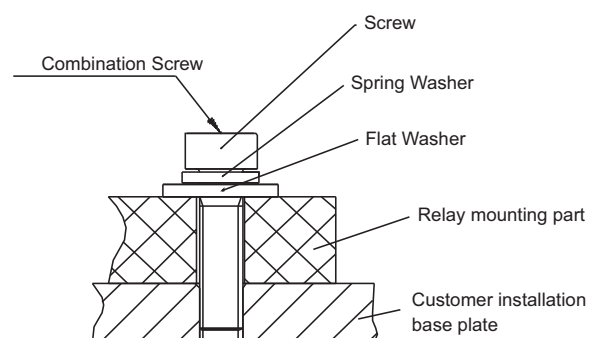
Precautions for use

1. In order to suppress the relay coil reverse electromotive force, it is recommended to connect bi-directional TVS diode or varistor with the coil in parallel (voltage is 1.5-2 times of rated voltage). If diode is used, the relay release time will be greatly prolonged, which may lead to the decline of cut-off performance.
Note: the energy-saving product has a coil suppression reverse electromotive force device.
2. The rated values of contact parameters are tested under resistive load. In the case of inductive load with $L/R > 1\text{ms}$, please connect inrush current protection devices for this load. If no measures are taken, electrical durability may decrease and on-off failure may occur. Please leave enough space when design.
3. As a HVDC switching device, it may fail at high temperature when the lifetime and load capacity exceed parameters specified in the manual. The protective circuit which can cut off the load in case of emergency shall be adopted. As a product with limited life, it should be replaced in time to ensure safety.
4. Please avoid grease and other foreign bodies on the terminal, and use connecting wires of 50mm² or above; When installing the load terminal, ensure that the power cable is close to the lead terminal. Install and tighten it in the sequence of flat washer, spring washer and nut, or directly use the self-locking nut. Contamination of the lead terminal or incorrect connection sequence can cause severe overheating and melting of the insulation of the connection cable.
5. Please use washers to prevent looseness during installation. Please control the locking torque within the recommended range. If it exceeds the range, it may cause damage to the shell. When using screws, make sure the gasket is thick and strong enough, otherwise it will deform and burst the casing.

Load wire installation



Relay installation



Notes: Tapping depth of load internal thread M6 is 8.5mm.

Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. In case there is specific criterion (such as mission profile, technical specification, PPAP etc.) checked and agreed by and between customer and Hongfa, this specific criterion should be taken as standard regarding any requirement on Hongfa product. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

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PACKING LIST

Type	Packing Method	Min. package Qty.	Tube Size L x W x H cm	QTY/CTN PCS	Approx. N.W. kg	Approx. G.W. kg	Stacking Layers Limit n
HFZ16V-30	Pearl Cotton	40 pcs/box	465×375×170	80	10	12	6
HFZ16V-50	Pearl Cotton	30 pcs/box	465×375×170	60	10.8	12.96	6
HFZ16V-100	Pearl Cotton	30 pcs/box	465×375×170	60	10.8	12.96	6
HFZ16V-150	Pearl Cotton	20 pcs/box	465×375×170	40	18.8	22.56	6
HFZ16V-200	Pearl Cotton	20 pcs/box	465×375×170	40	18.8	22.56	6
HFZ16V-250	Pearl Cotton	20 pcs/box	465×375×170	40	18.8	22.56	6
HFZ16V-50P	Pearl Cotton	30 pcs/box	465×375×170	60	12	14.4	6
HFZ16V-100P	Pearl Cotton	30 pcs/box	465×375×170	60	12	14.4	6
HFZ16V-150P	Pearl Cotton	20 pcs/box	465×375×170	40	18.8	22.56	6
HFZ16V-200P	Pearl Cotton	20 pcs/box	465×375×170	40	18.8	22.56	6
HFZ16V-250P	Pearl Cotton	20 pcs/box	465×375×170	40	18.8	22.56	6
HFZ16V-300P	Pearl Cotton	12 pcs/box	465×375×170	24	21.12	25.344	6
HFZ17V-50	Pearl Cotton	40 pcs/box	465×375×170	80	10	12	6
HFZ18V-100P	Pearl Cotton	25 pcs/box	465×375×170	50	18.7	22.44	6
HFZ18V-150P	Pearl Cotton	25 pcs/box	465×375×170	50	18.7	22.44	6
HFZ20V-150P	Pearl Cotton	30 pcs/box	465×375×170	60	14.7	17.64	6
HFZ20V-200P	Pearl Cotton	25 pcs/box	465×375×170	50	18.7	22.44	6

Notes: 1) This above list is the typical packing specification. Specifications and dimensions in this catalog are subject to change without notice.



HONGFA RELAY

ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2021 Rev. 1.00

PRECAUTIONS FOR USE

To better use the latching relay, besides knowing its features, there are some cautions for you to know to make sure the latching relay can work reliably.

1. The environment of use, storage and transportation

1.1 During use, storage and transportation, please avoid direct sunlight and keep normal temperature, humidity and pressure. Recommended range of temperature and humidity for use, storage and transportation is shown in the non-shaded area in Figure 1:

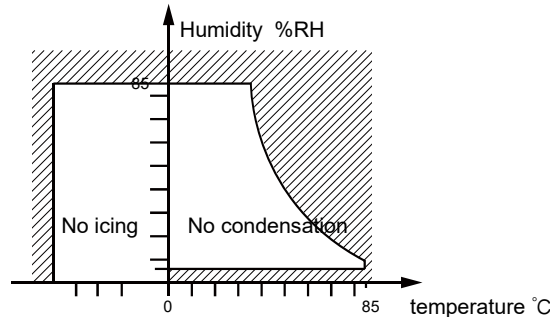


Figure 1

Recommended range of temperature and humidity for use, storage and transportation:

A) Temperature: 0°C~40°C

B) Humidity: 5%RH-85%RH

C) Atmospheric Pressure: 86kPa~106kPa

1.2 High humidity environment

Please note that in a high humidity environment, when the ambient temperature changes rapidly, condensation may occur inside the relay, resulting in replay insulation deterioration, coil disconnection, rust and other phenomena. A typical case is shipping goods by sea.

1.3 Low temperature environment below 0°C

Please note that plastic embrittlement may happen in low temperature and low humidity environment for a long time.

Please note that the icing phenomenon may appear in low temperature environment below 0°C. For non-gas sealing products, icing may cause bonding of moving parts, delay of action, or obstruction of movement.

1.4 The contact is in the sealed chamber, and the chamber is filled with gas. The leakage rate of the gas in the chamber is proportional to the temperature of the chamber (the ambient temperature and the temperature rise generated by the contact electrification). Please ensure that the ambient temperature is within -40°C~+85°C.

1.5 Avoid using relays near strong magnetic fields (transformers, magnets) and near hot objects.

2. Safety considerations



Please note that there is a risk of electrocution if you touch the relay when it works.

Please cut off the power supply before installing, maintaining and troubleshooting the relay (including the connecting parts such as the load terminal and socket)

Please note that when connecting the load terminal, please refer to the wiring diagram on the product manual first, then connect correctly. Incorrect connection may result in unexpected misoperation, abnormal heating, fire and etc..

Do not use the relay any more if it falls down.



HONGFA RELAY

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2021 Rev. 1.00

3. Instructions to the application of DC relay

3.1 For polar products, make sure to use them correctly according to the instructions and marks on the product surface (as shown in Figure 2). When the load connection polarity is reversed, the electrical characteristics promised in this manual cannot be guaranteed. Please refer to Table 1 for polarity description of each series.

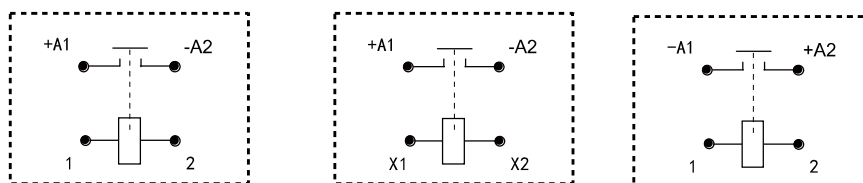


Figure 2

Table 1

Product series	The coil with polarity	Load terminal with polarity
HFZ16(V) Series	All series without polarity	30、50、100、150、200、250、50-2H、100-2H without polarity 50P、100P、150P、200P、250P、50P-2H、100-2H with polarity
HFZ17(V)Series	All series without polarity	-50 without polarity
HFZ18(V) Series	All series without polarity	-100P with polarity -150P with polarity

3.2 All non energy-saving model, in order to suppress the relay coil reverse electromotive force, suggest to connect the coil with nonlinear resistor parallelly (variable resistance is recommended to use, maximum energy tolerance > 1 j, voltage in 1.5 2 times of the rated voltage, if use diode, the release time will greatly lengthen and degrade the cutting performance. (Energy-saving products have built-in suppression reverse electromotive force circuit, surge suppression devices are not required)

3.3 The rated values in contact parameters are those under resistive load. In the case of inductive load with $L/R > 1\text{ms}$, connect inrush current protection devices for this load. If no measures are taken, electrical durability may decrease and bad on-off failure may occur. Please consider enough space in the design.

3.4 The relay is a HVDC switching device, which may fail at high temperature when its life times and load capacity exceed those specified in the manual. The protective circuit that can cut off the load in case of emergency shall be adopted. As a product with limited life, it should be replaced in time to ensure safety.

3.5 During installation, make sure that the main power cable is close to the terminal of the relay, and then install and tighten it in the order of flat washer, spring washer and nut, or use self-locking nut to install. Improper connection sequence may cause severe overheating and melt the insulation layer of the connecting cable.

3.6 Please note HFZ16-50A/100A/150A/200A/250A have built-in energy-saving board, after connecting 0.2 s, the coil will automatically switch; < 0.2s repeated on-off operation will cause relay failure.

PRECAUTIONS FOR USE

3.7 When testing the operating voltage of the relay with built-in energy-saving board, please avoid slowly rising voltage. Please drive the coil through fast rising edge (step power supply mode) (as shown in Figure 3), otherwise the electric appliance may not work.

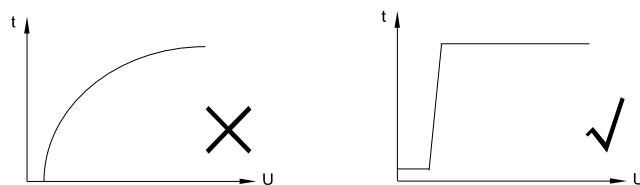


Figure 3

3.8 The screw locking torque of each part of the relay should be controlled within the prescribed range below. Exceeding the range may cause damage to the sealing cavity and screw thread. In addition, the installation direction is not restricted. Please refer to Table 2 for installation methods and torque requirements of each model:

Table 2

Type	Load terminal mounting part		Relay mounting part	
	Installation Method	Torque Requirements	Installation Method	Torque Requirements
HFZ16 Series				
HFZ16(V)-30	M4 Screw		M4 Screw	2Nm~3Nm
HFZ16(V)-50	M4 Screw		M5 Screw	3Nm~4Nm
HFZ16(V)-100	M5 Screw	2Nm~3Nm	M5 Screw	3Nm~4Nm
HFZ16(V)-150	M6 Screw/M8 Nut	3Nm~4Nm	M5 Screw	3Nm~4Nm
HFZ16(V)-200	M8 Nut	3Nm~4Nm	M5 Screw	3Nm~4Nm
HFZ16(V)-250	M8 Nut/M10 Nut	9Nm~11Nm	M5 Screw	3Nm~4Nm
HFZ16(V)-50-2H	M5 Screw	9Nm~11Nm	M5 Screw	3Nm~4Nm
HFZ16(V)-100-2H	M5 Screw	9Nm~11Nm	M5 Screw	3Nm~4Nm
HFZ16(V)-50P	M4 Screw	11Nm~13Nm	M5 Screw	3Nm~4Nm
HFZ16(V)-100P	M5 Screw			
HFZ16(V)-150P	M8 Nut			
HFZ16(V)-200P	M8 Nut	2Nm~3Nm		
HFZ16(V)-250P	M8 Nut	5Nm~6Nm	M5 Screw	3Nm~4Nm
HFZ16(V)-50P-2H	M5 Screw	9Nm~11Nm	M5 Screw	3Nm~4Nm
HFZ16(V)-100P-2H	M5 Screw			
HFZ17 Series				
HFZ17(V)-50	M4 Screw	2Nm~3Nm	M4 Screw	2Nm~3Nm
HFZ18 Series				
HFZ18(V)-100P	M5 Screw	3Nm~4Nm	M5 Screw	3Nm~4Nm
HFZ18(V)-150P	M6 Screw	5Nm~6Nm	M5 Screw	3Nm~4Nm

**Xiamen Hongfa Electroacoustic Co.,Ltd.**

Add.: No.91-101, Sunban S.Rd., Jimei North Ind. Dist., Xiamen, China
Tel.: + 86 - 592 - 6106688 **Fax:** + 86 - 592 - 6106678

Zhejiang Hongzhou New Energy Technology Co.,Ltd

ADD: No. 99, Tonggang 1st Road, haichan District, Zhoushan City,
Zhejiang Province (Hongfa Zhoushan Industrial Park)
TEL: 86-0580-2292008 **FAX:**86-0580-2292001



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